Self Diagnosis Supported model

SERVICE MANUAL

BE-3E CHASSIS

MODEL	COMMANDER	DEST	CHASSIS NO.	MODEL	COMMANDER	DEST	CHASSIS NO.
KV-28FX20A	RM-887	Italian	SCC-Q22A-A	KV-28FX201A	RM-887	Italian	SCC-Q22C-A
KV-28FX20B	RM-887	French	SCC-Q23A-A	KV-28FX201B	RM-887	French	SCC-Q23C-A
KV-28FX20D	RM-887	AEP	SCC-Q21A-A	KV-28FX201D	RM-887	AEP	SCC-Q21C-A
KV-28FX20E	RM-887	Spanish	SCC-Q24A-A	KV-28FX201E	RM-887	Spanish	SCC-Q24E-A
KV-28FX20U	RM-887	UK	SCC-Q25A-A				

TRINITRON ® COLOR TV

SONY ®

MICROFILM

ITEM MODEL	Television System	Stereo System	Channel Coverage	Color System
Italian	B/G/H	GERMAN Stereo	ITALIA VHF : A-H2 (C) UHF : 21-69 PAL B/G/H VHF : E2-E12 UHF : E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05,M1-M10,U1-U10	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
French	B/G/H, D/K,L,I	GERMAN/NICAM Stereo	L VHF : F02-F10 UHF : F21-F60 CABLE : B-Q B/G/H VHF : E2-E12 UHF : E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF : A-H2 (C) UHF : 21-69 I UHF : B21-B69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
AEP	B/G/H	GERMAN Stereo	PAL B/G/H/ VHF : E2-E12 : E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF : A-H2 (C) UHF : 21-69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
Spanish	B/G/H, D/K	GERMAN/NICAM Stereo	PAL B/G/H/ VHF : E2-E12 : E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF : A-H2 (C) UHF : 21-69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
UK	I	NICAM Stereo	UHF : B21-B69	PAL NTSC4.43, NTSC3.58 (VIDEO IN)

MODEL	28FX20A	28FX20B	28FX20D	28FX20E	28FX20U
Power Consumption	109W	123W	123W	123W	188W

[PICTURE TUBE] FD Trinitron Wide
Approx. 71 cm (28 inches)
(Approx. 66 cm picture measured diagonally)
102 degree deflection

Input/Output Terminals

[REAR]

1 21-pin Euro connector (CENELEC standard).
- Inputs for Audio and Video signals.
- Inputs for RGB.
- Outputs of TV Video and Audio signals.

2/2 21-pin Euro connector
- Inputs for Audio and Video signals.
- Inputs for S video.
- Outputs for Video and Audio signals (selectable).

Phono jacks
- Outputs for Audio Signals

[FRONT]

3 Video output - phono jack

3 Audio inputs - phono jacks

S Video input - 4 pin din

Headphone jack : stereo minijack

Sound output	2x20W (Music Power)
Subwoofer	20W (Music Power)
Power requirements	220 - 240V
Dimensions	Approx 761x496x525 (w/h/d)
Weight	Approx 44.0kg
Supplied accessories	RM-887 Remote Commander (1) IEC designated R6 batteries (2)
Other features	NICAM*, FASTEXT, TOPTEXT * (KV-28FX20B, 28FX20E, 28FX20U)

[RM-887]

Remote control system	Infrared control
Power requirements	3V dc 2 batteries IEC designation R6 (size AA)
Dimensions	Approx 44x209x23mm (w/h/d)
Weight	Approx 89g (Not including battery)

Design and specifications are subject to change without notice.

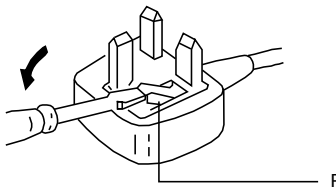
Model Name / Item	KV-28FX20A	KV-28FX20B	KV-28FX20D	KV-28FX20E	KV28FX20U
Pal Comb	OFF	OFF	OFF	OFF	OFF
PIP	OFF	OFF	OFF	OFF	OFF
RGB Priority	OFF	OFF	OFF	OFF	OFF
Woofer Box	ON	ON	ON	ON	ON
Scart 1	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON
Front in (3)	ON	ON	ON	ON	ON
Scart 4	OFF	OFF	OFF	OFF	OFF
Projector	OFF	OFF	OFF	OFF	OFF
AKB in 16:9 mode	ON	ON	ON	ON	ON
Norm B/G	ON	ON	ON	ON	OFF
Norm I	OFF	ON	OFF	OFF	ON
Norm D/K	OFF	ON	OFF	ON	OFF
Norm AUS	OFF	OFF	OFF	OFF	OFF
Norm L	OFF	ON	OFF	OFF	OFF
Norm SAT	OFF	OFF	OFF	OFF	OFF
Norm M	OFF	OFF	OFF	OFF	OFF
Teletext	ON	ON	ON	ON	ON
Nicam Stereo	OFF	ON	OFF	ON	ON
Language Preset	Italian	French	German	Spanish	English

WARNING (KV-28FX20U only)

The flexible mains lead is supplied connected to a **B.S. 1363** fused plug having a fuse of **5 AMP** capacity. Should the fuse need to be replaced, use a **5 AMP FUSE** approved by **ASTA** to **BS 1362**, ie one that carries the ⓐ mark.

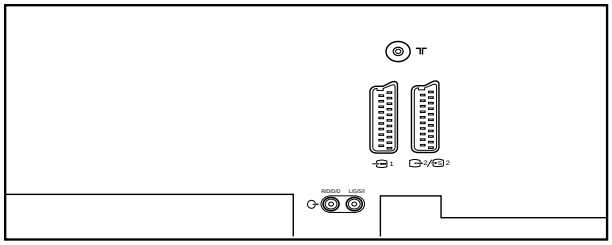
IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR THE OUTLET SOCKETS IN YOUR HOME, IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED. THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE OUTLET SOCKET.

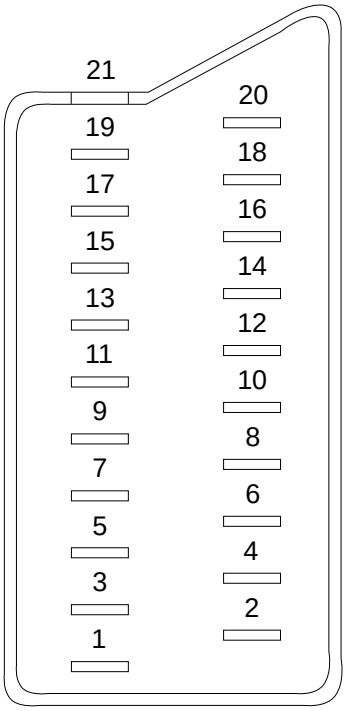
When an alternative type of plug is used it should be fitted with a **5 AMP FUSE**, otherwise the circuit should be protected by a **5 AMP FUSE** at the distribution board.



How to replace the fuse.
Open the fuse compartment with a screwdriver blade and replace the fuse.

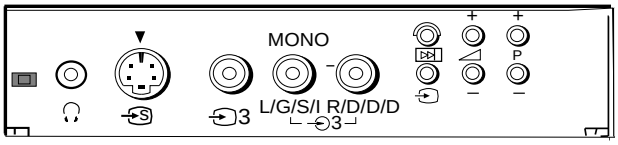
21 pin connector (1, 2/ S 2)





Pin No	1	2	4	Signal	Signal level
1	○	○	○	Audio output B (right)	Standard level : 0.5V rms Output impedence : Less than 1kohm*
2	○	○	○	Audio output B (right)	Standard level : 0.5V rms Output impedence : More than 10kohm*
3	○	○	○	Audio output A (left)	Standard level : 0.5V rms Output impedence : Less than 1kohm*
4	○	○	○	Ground (audio)	
5	○	○	○	Ground (blue)	
6	○	○	○	Audio input A (left)	Standard level : 0.5V rms Output impedence : More than 10kohm*
7	○	●	●	Blue input	0.7 +/- 3dB, 75 ohms positive
8	○	○	○	Function select (AV control)	High state (9.5-12V) : Part mode Low state (0-2V) : TV mode Input impedence : More than 10K ohms Input capacitance : Less than 2nF
9	○	○	○	Ground (green)	
10	○	○	○	Open	
11	○	●	●	Green	Green signal : 0.7 +/- 3dB, 75 ohms, positive
12	○	○	○	Open	
13	○	○	○	Ground (red)	
14	○	○	○	Ground (blanking)	
15	○	–	–	Red input	0.7 +/- 3dB, 75 ohms, positive
	–	○	○	(S signal Chroma input)	0.3 +/- 3dB, 75 ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1-3V) Low state (0-0.4V) Input impedence : 75 ohms
17	○	○	○	Ground (video output)	
18	○	○	○	Ground (video input)	
19	○	○	○	Video output	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
20	○	–	–	Video input	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
	–	○	○	Video input Y (S signal)	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
21	○	○	○	Common ground (plug, shield)	

○ Connected ● Not Connected (open) * at 20Hz - 20kHz



Pin No.	Signal	Signal Level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75 ohm, positive Sync. 0.3V -3 + 10dB
4	C (S signal) input	0.3V ± 3dB 75 ohm, positive Sync.

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CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR THE CARBON PAINTED ON THE CRT, AFTER REMOVAL OF THE ANODE CAP

WARNING !!

AN ISOLATING TRANSFORMER SHOULD BE USED DURING ANY SERVICE WORK TO AVOID POSSIBLE SHOCK HAZARD DUE TO LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARKED ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION

APRES AVOIR DECONNECTE LE CAP DE'LANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION !!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENTION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÈ LORS DE TOUT DÈPANNAGE. LE CHÁSSIS DE CE RÈCEPTEUR EST DIRECTMENT RACCORDÈ Á L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS Á LA SÈCURITÈ !!

LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES SCHÈMAS DE PRINCIPE, LES VUES EXPLOSÈES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÈCURITÈ DU FONCTIONNEMENT, NE LES REMPLACER QUE PAR DES COMPSANTS SONY DONT LE NUMÈRO DE PIÈCE EST INDIQUÈ DANS LE PRÈSENT MANUEL OU DANS DES SUPPLÈMENTS PUBLIÈS PAR SONY.

BE-3E SELF DIAGNOSTIC SOFTWARE

The errors indicated below can be read using an Error Reader Display (Part Number S-188-900-10) connected to the service connector. Once an error has been detected it will then be displayed on the two digit error reader. During the power up procedure and during normal run time, the micro's self diagnostic procedures monitor for various errors. Errors displayed refer to the table indicated below.

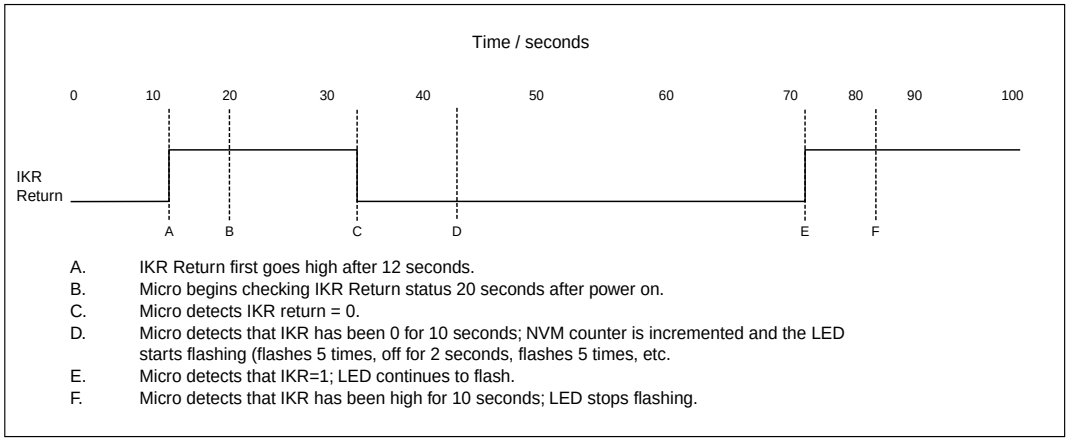
Error Number	Error Description
00	No error (TV Error Reader shows 00 in normal condition)
01	Not allowed (may be confused with Sircs response flash on LED)
02	Protection circuit trip (OCP, OVP & No V-Sync)
03	Reserved for OVP (Included in error 2 for BE-3E)
04	Reserved for No V-Sync (Included in error 2 for BE-3E)
05	AKB
06	IIC Scl Low <Power Up only>
07	IIC Sda Low <Power Up only>
08	IIC Sda & Scl Low <Power Up only>
09	Jungle controller no acknowledge <Power Up only>
10	Video Switch (CXA2040) no acknowledge <Power Up only>
11	Tuner no acknowledge
12	MSP no acknowledge
13	NVM no acknowledge
14	AV switch (CXA2089) no acknowledge (DS10 & DX10)
15	Not used
16	Port Expander (CXA1875) no acknowledge (DS10 & DX10)
17	Not used
18	Dynamic Convergence (CXA8070) no acknowledge
19	Cannot Initialise jungle (after initial power on check OK) - <Chassis Initialisation>
20	Jungle controller response failure after power up check (+9V test)
21	Video Switch (CXA2040) cannot power on reset - <Chassis Initialisation>
22	Video Switch (CXA2040) response failiure after power up check (+9V test)
23	NVM acknowledge fail after initialisation (STBY +5V - same as micro!)
24	MSP run-time failure <May Not Be Fatal - Display On Error Reader>
25	DSP run-time failure <May Not Be Fatal - Display On Error Reader>
26	M3L bus Clock low time out after data send <Run-Time Failure>
27	M3L bus Clock low time out after data send <At Power Up Check>
28	M3L bus Clock low time out after data send <At Initialisation>
29	M3L Txd Low <Power Up Only>
30	M3L Rxd Low <Power Up Only>
31	M3L Enable Low <Power Up Only>
32	Compact Text test fail <Power Up Only>
33	Compact Text does not respond (+5V test)
34	Compact text run-time failure <May Not Be Fatal - Display On Error Reader>

Protection Error (Error 2):

Once every main loop (approximately 200ms OSD mode, 50ms text or menu mode), the micro checks the protection pin (pin 66). If the protection pin is high 6 successive times, a protection error is diagnosed. The protection pin is **not** checked during the first 3 - 4 seconds after AC on.
If this error is diagnosed, the respective NVM register will be updated and the set goes straight into diagnostic standby with 2 flashes - no reset is attempted.

AKB Error (Error 5):

Once every main loop the micro checks the AKB stability by reading the IKR return from the Jungle IC. IKR=1 means that the AKB is stable, IKR=0 means that the AKB is unstable. If the AKB status is unstable for 10 seconds, an AKB error is diagnosed. AKB stability is not checked during the first 20 seconds after AC switch on.
If this error is diagnosed, the respective NVM register will be updated and the response LED will flash 5 times continually, but the set will not go into standby mode. If the AKB status becomes stable, and remains stable for 10 seconds, the LED will stop flashing.



A. IKR Return first goes high after 12 seconds.
B. Micro begins checking IKR Return status 20 seconds after power on.
C. Micro detects IKR return = 0.
D. Micro detects that IKR has been 0 for 10 seconds; NVM counter is incremented and the LED starts flashing (flashes 5 times, off for 2 seconds, flashes 5 times, etc.
E. Micro detects that IKR=1; LED continues to flash.
F. Micro detects that IKR has been high for 10 seconds; LED stops flashing.

Startup Diagnostic Errors (Errors 6-18, 27, 29-32):

NVM	Error Description
6	SCL pin low
7	SDA pin low
8	Both SCL and the SDA pins are low
9	No acknowledge from the jungle (CXA2076)
10	No acknowledge from the video switch (CXA2040)
11	No acknowledge from the tuner
12	No acknowledge from the MSP
13	No acknowledge from the NVM
14	No acknowledge from the CXA2089 video switch (DS10 & DX10)
16	No acknowledge from the CXA1875 video Port Expander (DS10 & DX10)
18	No acknowledge from the Dynamic Convergence (CXA8070)
27	M3L_TXD pin low after Compact Text RAM test.
29	M3L_TXD pin low
30	M3L_RXD pin low
31	M3LEN pin low
32	Compact Text RAM test fail

If any of these errors are detected, the respective NVM register will be incremented. The software will then carry on with the power up sequence.

General IIC Device Run-time Errors (Errors 19-23):

NVM	Error Description
19	No acknowledge from Jungle when attempting to initialise.
20	No acknowledge from Jungle when attempting to read registers.
21	AV Switch cannot complete reset during initialisation.
22	No acknowledge from AV Switch when attempting to read registers.
23	No acknowledge from NVM when attempting to read or write.

If any of these errors are detected, the respective NVM register will be incremented and the software will carry on.

Compact Text Run-time Errors (Errors 26, 28, 33 & 34):

NVM	Error Description
26	M3L_TXD pin low when checking register 81 (implies that no communication was possible).
28	M3L_TXD pin low when attempting to initialise (implies that no communication was possible).
33	Compact Text RAM test failed during initialisation of devices.

In the case of these errors, the 'device reset' pin will be held low for 60ms, causing a hardware reset of Compact Text. Following this reset, a longer timeout will be allowed for the M3L bus to recover. If the error still exists, the NVM register will be incremented and the software will carry on.

NVM	Error Description
34	Register 81 check fail, but M3L_TXD pin high (implies that Compact Text has either reset or become corrupted).

In the case, the 'device reset' pin will be held low for 60ms, causing a hardware reset of Compact Text. Compact Text will then be re-initialised and the NVM counter updated. This is the same as for errors 26, 28 and 33 except that the M3L bus timeout is not changed.

MSP and DSP Run-time Errors (Errors 24 & 25):

NVM	Error Description
24	Error 24 can be caused by any of the following : - After MSP initialisation, Scart Prescale Register check fail (implies that the MSP has either reset or become corrupted). - MSP fails to acknowledge reset instruction. - Scart Prescale Register check fail (implies that the MSP has either reset or become corrupted).
25	- DSP test byte corrupted (implies that the MSP has either reset or become corrupted).

For both these errors, the software will refresh the MSP and DSP registers. If the errors still exist, the NVM counter will be incremented, and the software will carry on.

Error Display Mode

Error Display Mode is entered by the following sequence of commands :

Standby -> Information -> Digit 5 -> Volume Down -> TV

This mode will display a special menu, which will list all possible errors and the number of occurrances of each error (0 - 255, as stored in the NVM). There will also be a display of the current error (00 if no error). This display mode will appear as follows :

ERROR DISPLAY MODE

Current Error Code = 00

Error Code	Occurrences	Error Code	Occurrences
2	2	19	0
3	--	20	0
4	--	21	0
5	0	22	0
6	0	23	0
7	0	24	0
8	0	25	4
9	0	26	5
10	0	27	89
11	0	28	3
12	0	29	0
13	0	30	0
14	0	31	0
15	3	32	0
16	0	33	3
17	0	34	38
18	6		

Whilst in this mode, the number of occurences of each error can be reset to 0 by following sequence of Sircs commands: Digit 8 -> Digit 0. ‘TT08’ will also reset this NVM data.

This mode can only be exited by switching off the TV.

The Current Error Code can also be read by using a TV Error Reader (IIC slave address 42H). This device simply receives 1 data byte, which is the error number in binary coded decimal form.

SECTION 1 GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

Overview of the remote control buttons

To mute sound

Press to mute TV sound. Press again to restore the sound.

To reveal on screen information

Press to reveal all on-screen indications. Press again to cancel.

To select channels

Press the numbered buttons to select channels.

For double digit programme numbers, e.g.23, press -/-- first, then the buttons 2 and 3. If you enter an incorrect first digit, this should be corrected by entering another digit (0 - 9) and then selecting -/-- button again to enter the programme number of your choice.

To return to TV mode

Press to return to the normal operation from teletext mode or standby mode.

To select teletext

Press to switch on Teletext.

To display sound menu

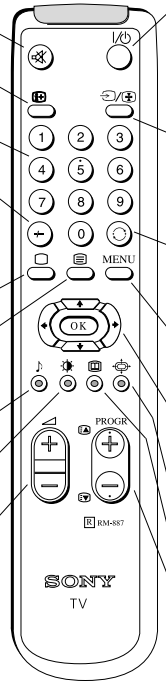
Press to change the sound settings. Press again to remove the display.

To display picture menu

Press to change the picture settings. Press again to remove the display.

To adjust TV volume

Press to adjust the volume of the TV.



To temporarily switch off TV

Press to temporarily switch off TV. Press again to switch on TV from standby mode.
To save energy we recommend switching off completely when TV is not in use.

NOTE: After 15 -30 minutes without a TV signal and without any button being pressed, the TV switches automatically into standby mode.

To select input signal or freeze teletext

Press to select inputs from the TV sockets (see Using Optional Equipment section). In teletext mode, press to freeze the displayed page. Press once again to cancel.

To return to previous channel

Press to return to the previous channel you were watching. Note: This can be done only after watching the present channel for 5 seconds

To display the menu

Press if you wish to use the TV menu system. Press again to remove the menu from the TV screen.

To select menu items

Use the OK button and arrow keys to select the options available in the menu system of this TV.

To change screen format

Press to change the size of the screen.

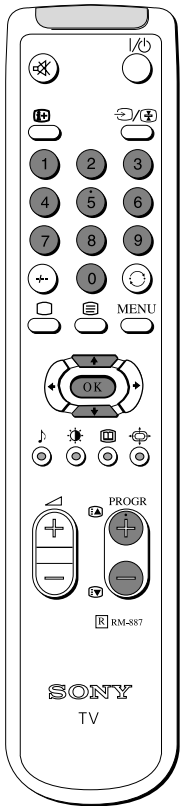
This button has no function

To select channels

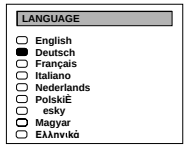
Press to select channels.

6. Automatically tuning the TV

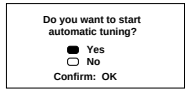
When you first switch on the TV, the following sequence of menu screens appear on the TV enabling you to 1) choose a language for the TV menu screens, 2) add channels to the TV, 3) arrange the channels.



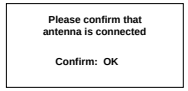
1 When switching on the TV for the first time, the 'LANGUAGE' menu appears automatically on the TV screen enabling you to select in which language you wish to read the TV menu screens. Press the UP and DOWN arrow keys on the remote control to select your language then press the OK button to confirm your selection.

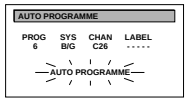


2 The 'AUTO TUNE' menu appears on the TV screen in your selected language. Press the UP and DOWN arrow keys to select 'YES' then press the OK button to confirm.

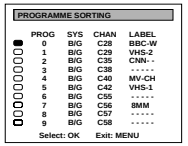


3 A new menu appears asking you to check that the antenna is connected. Ensure that the antenna is connected then press the OK button to confirm. The TV now starts to automatically search and store all available channels for you. Please be patient and do not press any buttons.



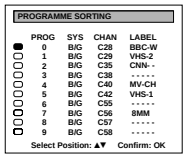


4 When the TV has finished tuning in all available channels, the 'PROGRAMME SORTING' menu appears on the TV screen which enables you to change the channel order on your TV. If you wish to change the order of any of the TV channels, press the PROGR+/- button on your remote control until the channel you wish to rearrange appears on the screen. Press the UP or DOWN arrow keys to select the new programme number position for your selected channel. Press the OK button to confirm. Repeat this procedure if you wish to change the order of other channels on your TV.



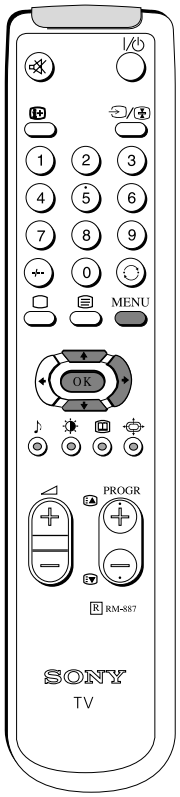
5 Press the MENU button to remove the menu from the TV screen.

6 Press the PROGR+/- or the numbered buttons on the remote control to view the TV channels.

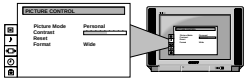

PROGRAMME SORTING
PROG SYS CHAN LABEL
0 B/G C28 BBC-W
1 B/G C29 VHS-2
2 B/G C35 CNN- -
3 B/G C38 -----
4 B/G C40 MV-CH
5 B/G C42 VHS-1
6 B/G C55 -----
7 B/G C56 8MM
8 B/G C57 -----
9 B/G C58 -----
Select Position: ▲▼ Confirm: OK

Choosing a language for the TV menu screens

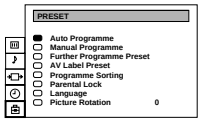
The TV consists of a menu system which can appear on screen in a variety of languages. Use the following feature to select the language that best suits you.



1 Press the MENU button on the remote control to display the menu on the TV screen.



2 Press the UP or DOWN arrow keys to select the symbol on the menu screen then press the RIGHT arrow key to enter the ‘PRESET’ menu



3 Press the UP or DOWN arrow keys to select ‘Language’ on the menu screen then press the RIGHT arrow key to enter the ‘LANGUAGE’ menu.

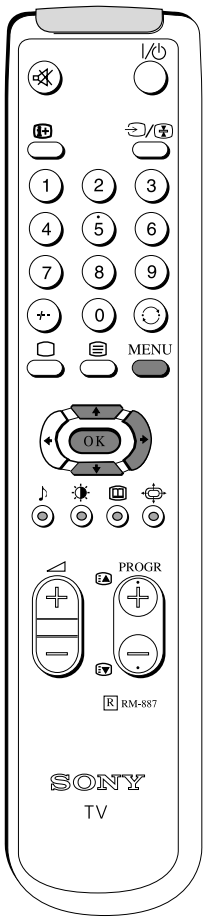
4 Press the UP or DOWN arrow keys to select your chosen language.

5 Press the OK button to confirm your selection.

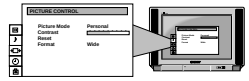
6 Press the MENU button to remove the display from the TV screen.

Re-arranging the TV channels

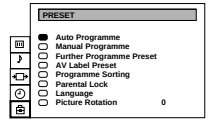
After automatically tuning the TV, you can use this feature to change the channel order. You may wish for example to exchange the channel on programme number 8 with the channel on programme number 4.



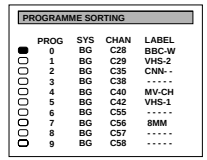
1 Press the MENU button on the remote control to display the menu on the TV screen.



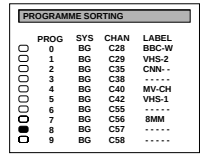
2 Press the DOWN arrow key on the remote control to select the symbol on the menu screen then press the RIGHT arrow key to enter the ‘PRESET’ menu.



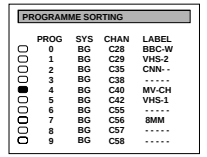
3 Press the DOWN arrow key to select ‘Programme Sorting’ then press the RIGHT arrow key to enter the ‘PROGRAMME SORTING’ menu.


PROGRAMME SORTING
PROG SYS CHAN LABEL
0 BG C28 BBC-W
1 BG C29 VHS-2
2 BG C35 CNN- -
3 BG C38 - - - - -
4 BG C40 MV-CH
5 BG C42 VHS-1
6 BG C55 - - - - -
7 BG C56 8MM
8 BG C57 - - - - -
9 BG C58 - - - - -

4 Press the UP or DOWN arrow keys to select the programme position of the channel you want to move (e.g. PROG 8) then press the OK button to confirm.


PROGRAMME SORTING
PROG SYS CHAN LABEL
0 BG C28 BBC-W
1 BG C29 VHS-2
2 BG C35 CNN- -
3 BG C38 - - - - -
4 BG C40 MV-CH
5 BG C42 VHS-1
6 BG C55 - - - - -
7 BG C56 8MM
8 BG C57 - - - - -
9 BG C58 - - - - -

5 Press the UP or DOWN arrow keys to select the new programme position for your selected channel (e.g. PROG 4) then press the OK button to confirm. The two selected channels now exchange position.

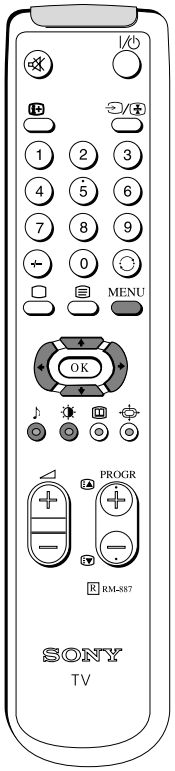

PROGRAMME SORTING
PROG SYS CHAN LABEL
0 BG C28 BBC-W
1 BG C29 VHS-2
2 BG C35 CNN- -
3 BG C38 - - - - -
4 BG C40 MV-CH
5 BG C42 VHS-1
6 BG C55 - - - - -
7 BG C56 8MM
8 BG C57 - - - - -
9 BG C58 - - - - -

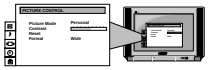
6 Repeat steps 4 and 5 if you wish to sort other channels.

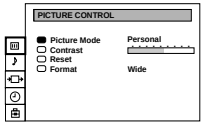
7 Press the MENU button to remove the menu from the TV screen.

Adjusting the picture

Although the picture is adjusted at the factory, you can modify it to suit your own taste.







1 Press the MENU button on the remote control to display the menu on the TV screen.
2 Press the UP or DOWN arrow key on the remote control to select the ▮▮ symbol on the menu screen then press the RIGHT arrow key to enter the 'PICTURE CONTROL' menu.
3 Press the UP or DOWN arrow keys to select the item on the screen you wish to adjust then press the RIGHT arrow key to confirm. For a description of the menu items and their effects, see the table underneath.
4 If you selected 'Picture Mode' or 'Format' in step 3, press the UP or DOWN arrow keys to select the item on the screen you wish to adjust then press the RIGHT arrow key to confirm.
5 Press the RIGHT or LEFT arrow keys to adjust your selected item.
6 As soon as you have adjusted the item, press the OK button to store the new setting.
7 If you selected 'Picture Mode' or 'Format' in step 3, press the LEFT arrow key to return to the 'PICTURE CONTROL' menu.
8 Repeat steps 3-7 to adjust the other items.
9 Press the MENU button to remove the menu from the TV screen.

Picture Mode	Picture Mode	←	Personal (for individual settings) Movie (for films) → Live (for live broadcasts)
	Brightness*	← Darker	→ Brighter
	Colour*	← Less	→ More
	Sharpness*	← Softer	→ Sharper
	Hue**	← Greenish	→ Reddish
Contrast		← Less	→ More
Reset		Resets picture to factory preset levels	
Format	Format	(refer to page 14 for details)	
	Scroll Auto 16:9	← Off	→On

* Only if you select 'Personal' in 'Picture Mode'.
**Available for NTSC colour system only.

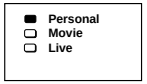
Changing picture and sound modes quickly

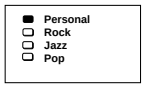
You can quickly change the Picture Mode or the Equalizer Mode without entering the 'PICTURE CONTROL' or the 'SOUND CONTROL' menu screens.

1 Press the ☼ symbol on the remote control for picture modes or the ♪ symbol for equalizer modes.

2 Press the UP or DOWN arrow keys to select the desired mode.

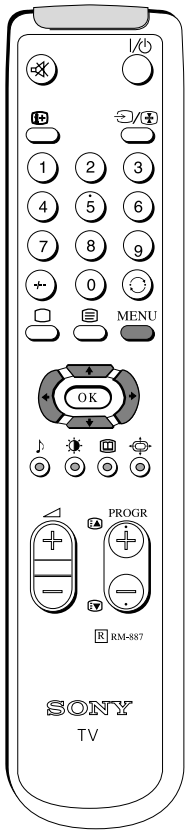
3 Press ☼ or ♪ again to remove the display from the TV screen.

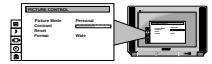


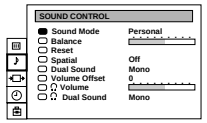


Adjusting the sound

Although the sound is adjusted at the factory, you can modify it to suit your own taste.





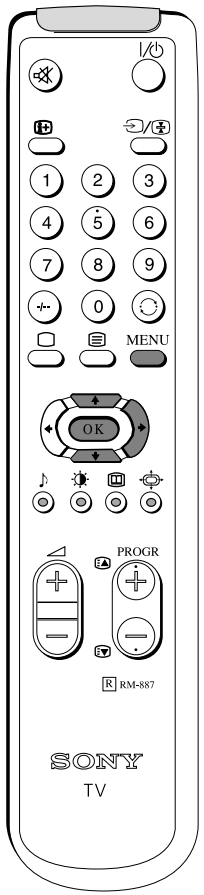


1 Press the MENU button on the remote control to display the menu on the TV screen.
2 Press the DOWN arrow key on the remote control to select the ♪ symbol on the menu screen then press the RIGHT arrow key to enter the 'SOUND CONTROL' menu.
3 Press the UP or DOWN arrow keys to select the item on the screen you wish to adjust then press the RIGHT arrow key to confirm. For a description of the menu items and their effects, see the table underneath.
4 If you selected 'Sound Mode' in step 3, press the UP or DOWN arrow keys to select the item on the screen you wish to adjust then press the RIGHT arrow key to confirm.
5 Press the RIGHT or LEFT arrow keys to adjust your selected item.
6 As soon as you have adjusted the item, press the OK button to store the new setting.
7 If you selected 'Sound Mode' in step 3, press the LEFT arrow key to return to the 'SOUND CONTROL' menu.
8 Repeat steps 3-7 to adjust the other items.
9 Press the MENU button to remove the menu from the TV screen.

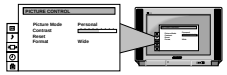
Sound Mode	← Personal Jazz Rock → Pop	
Balance	Less ←	→More
Reset	Resets picture to factory preset levels	
Spatial	← On: volume level of the channels will stay the same → Off: volume level changes according to the broadcast signal	
Dual Sound	Stereo← →Mono (for a stereo broadcast) A for channel 1← →B for channel 2 (for a bilingual broadcast)	
Volume Offset	← The channel volume level can be adjusted over a range of -12 to +12 →	
Headphones 🎧 Volume 🎧 Dual Sound	Less ← Stereo← A for channel 1←	→More →Mono (for a stereo broadcast) →B for channel 2 (for a bilingual broadcast)

Manually fine tuning the TV picture

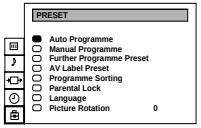
If the picture is distorted, you can manually fine-tune the TV to obtain a better picture reception.



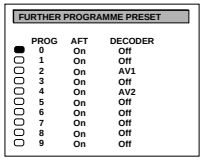
1 Press the MENU button on the remote control to display the menu on the TV screen.



2 Press the DOWN arrow key to select the symbol on the menu screen then press the RIGHT arrow key to enter the 'PRESET' menu.

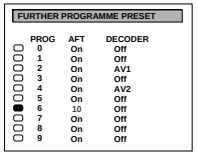


3 Press the DOWN arrow key to select 'Further Programme Preset' then press the RIGHT arrow key to enter the 'FURTHER PROGRAMME PRESET' menu.



4 Press the UP or DOWN arrow keys to select the programme number you want to manually fine-tune.

5 Press the RIGHT arrow key repeatedly until the AFT column is highlighted.



6 Press the UP or DOWN arrow keys to fine tune the channel frequency over a range of -15 to +15.

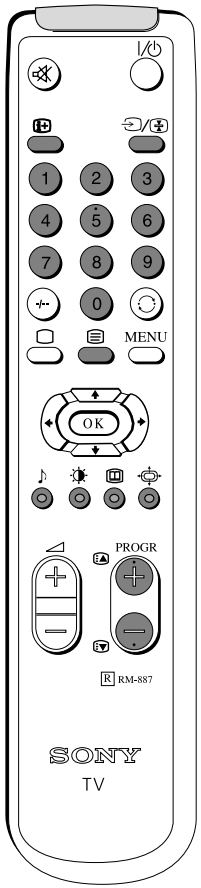
7 Press the OK button to confirm.

8 Repeat steps 4 to 7 to fine-tune other channels.

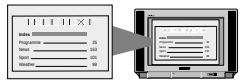
9 Press the MENU button to remove the menu from the TV screen.

Teletext

Teletext is an information service transmitted by most TV stations.



Switching Teletext on and off



1 When viewing channels, press a number button on the remote control to select the channel which carries the teletext service you wish to receive.

2 Press the button on the remote control to switch on teletext.

3 Input three digits for the page number using the numbered buttons on the control. If you make a mistake, type in any three digits then re-enter the correct page number.

4 Press the button to switch off teletext.

NOTE: Teletext errors may occur if the broadcasting signals are weak.

Using Other Teletext Functions

To superimpose teletext on to the TV

Press the button on the remote control once in teletext mode or twice in TV mode to superimpose teletext on to the TV screen.
Press button once more to cancel.

To Move to Next or Preceding Page

Press or on the control to select the previous or next page.

To Freeze a Teletext Page

Press on the control to freeze the page. Press again to cancel the freeze.

Revealing concealed information (eg: answers to a quiz).

Press to reveal information. Press again to conceal the information.

Using Fastext

(only available if the TV station broadcasts Fastext signals)
When the colour coded menu appears at the bottom of a page, press the colour button (green, red, yellow or blue) on the control to access the corresponding page.

Specifications

TV system
B/G/H

Colour system
PAL, SECAM
NTSC 3.58, 4.43 (only Video In)

Channel coverage
See ‘Receivable Channels’ table on next page

Picture tube
KV-28FX20D:
FD Trinitron WIDE
Approx. 71 cm (28 inches) (Approx. 66 cm picture measured diagonally),
102° deflection
KV-32FX20D:
FD Trinitron WIDE
Approx. 82 cm (32 inches) (Approx. 76 cm picture measured diagonally),
102° deflection

Rear Terminals

1	21-pin Euro connector (CENELEC standard) including audio/video input, RGB input
2/2	21-pin Euro connector (CENELEC standard) including audio/video input, S-video input, Monitor audio/video output
	Audio outputs - phono jacks

Front Terminals

3	video input - phono jack
3	audio inputs - phono jacks
	S video input - 4 pin DIN
	Headphones jack - minijack stereo

Sound output:

Left, Right	2x20W (music power)
Subwoofer	20W (music power)

Power consumption

KV-28FX20D:	123 W
KV-32FX20D:	120 W

Dimensions (wxhxd)

KV-28FX20D:	Approx. 761 x 496 x 525 mm
KV-32FX20D:	Approx. 874 x 563 x 571 mm

Weight

KV-28FX20D:	Approx. 44.0 kg
KV-32FX20D:	Approx. 62.0 kg

Accessories supplied
RM-887 Remote Control (1)
IEC designated size AA battery (2)

Other features
TELETEXT

Design and specifications are subject to change without notice.

Troubleshooting

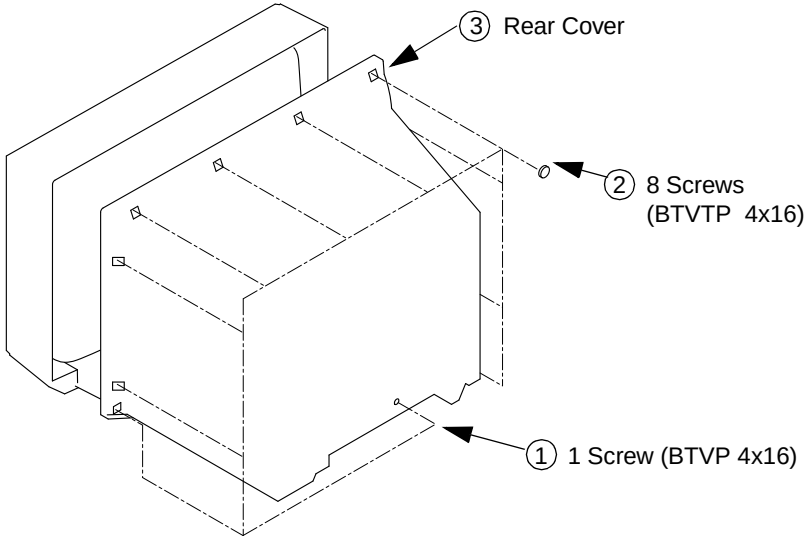
Here are some simple solutions to problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	• Plug the TV in. • Press the ⏻ button on the front of TV. • If the ⏻ indicator is on press I/⏻ button or a programme number button on the remote control. • Check the aerial connection. • Check that the selected video source is on. • Turn the TV off for 3 or 4 seconds and then turn it on again using the ⏻ button on the front of the TV.
Poor or no picture (screen is dark), but good sound.	• Using the MENU system, select the Picture Control and Picture Mode displays. Adjust the contrast, brightness, and colour levels. • From the Picture Control display select RESET to return to factory settings.
Poor picture quality when watching a RGB video source.	• Press the button repeatedly on the remote control until the RGB symbol is displayed on the screen.
Good picture, no sound	• Press the +/– button on the remote control. • If is displayed on the screen, press the button on the remote control.
No colour on colour programmes	• Using the MENU system, select the Picture Mode display. Adjust the the colour level setting. • From the Picture Control display select RESET to return to factory settings.
Distorted picture when changing programmes or selecting teletext	• Turn off any equipment connected to the 21 pin Euro connectors on the rear of the TV.
Remote control does not function	• Replace the batteries.
The standby indicator ⏻ on the TV flashes	• Contact your nearest Sony service centre.

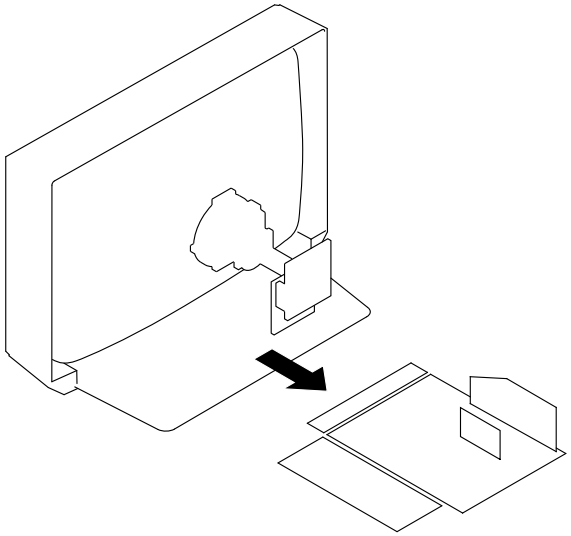
- **If you continue to have these problems, have your TV serviced by qualified personnel.**
- **NEVER open the casing yourself.**

SECTION 2
DISASSEMBLY

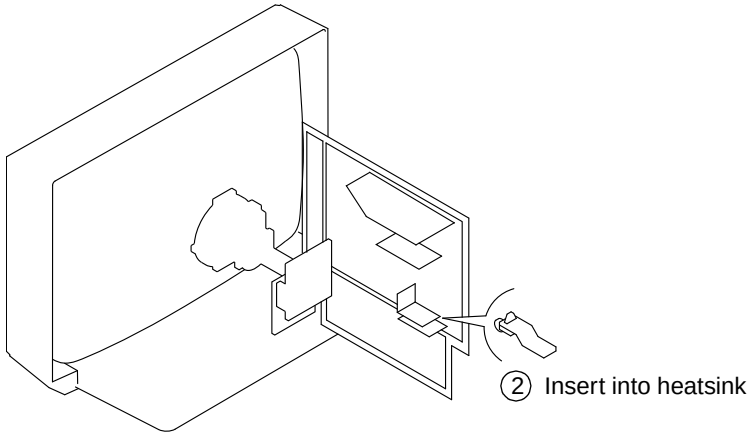
2-1. REAR COVER REMOVAL



2-2. CHASSIS ASSY REMOVAL

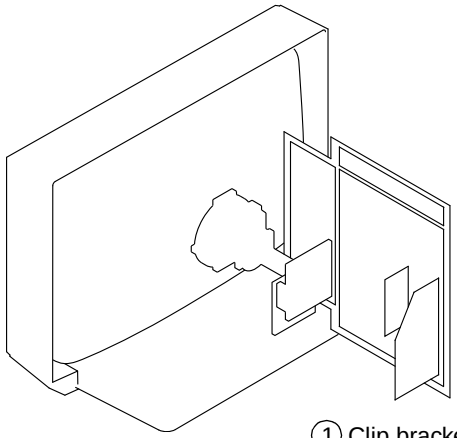


2-3-1. SERVICE POSITION (1)



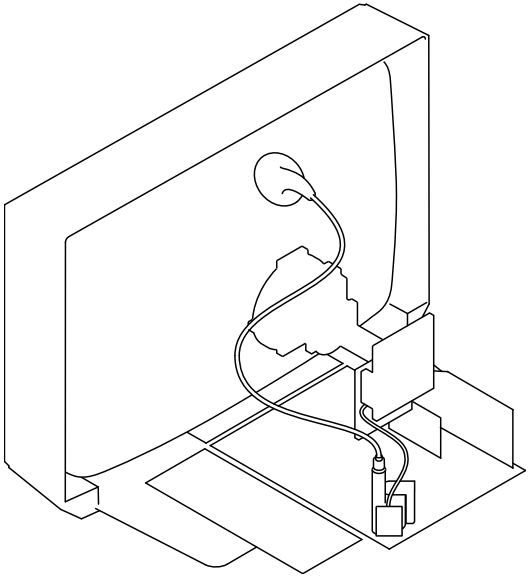
1 Snap off from main bracket

2-3-2. SERVICE POSITION (2)

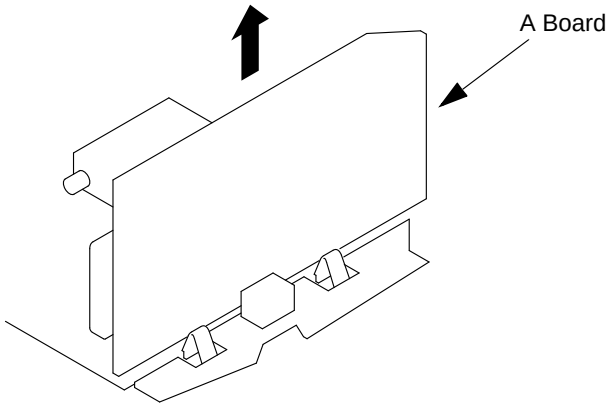


1 Clip bracket into Beznet

2-4. WIRE DRESSING

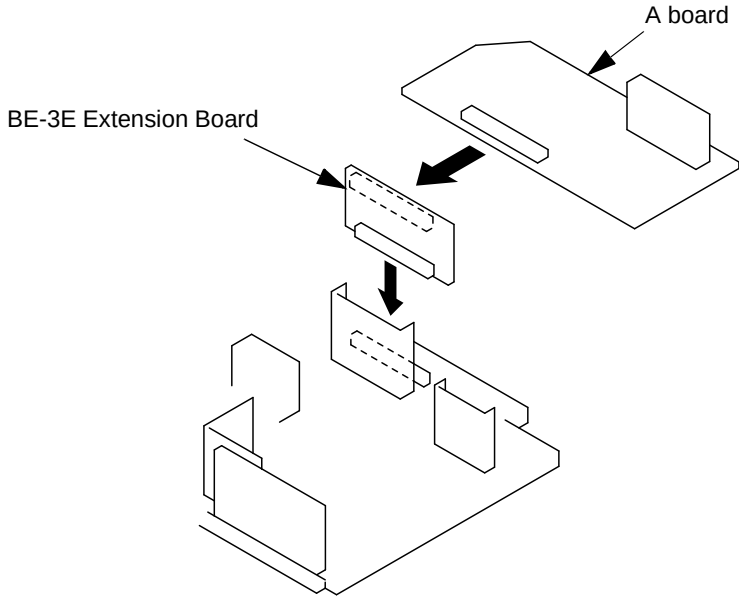


2-5. A BOARD REMOVAL

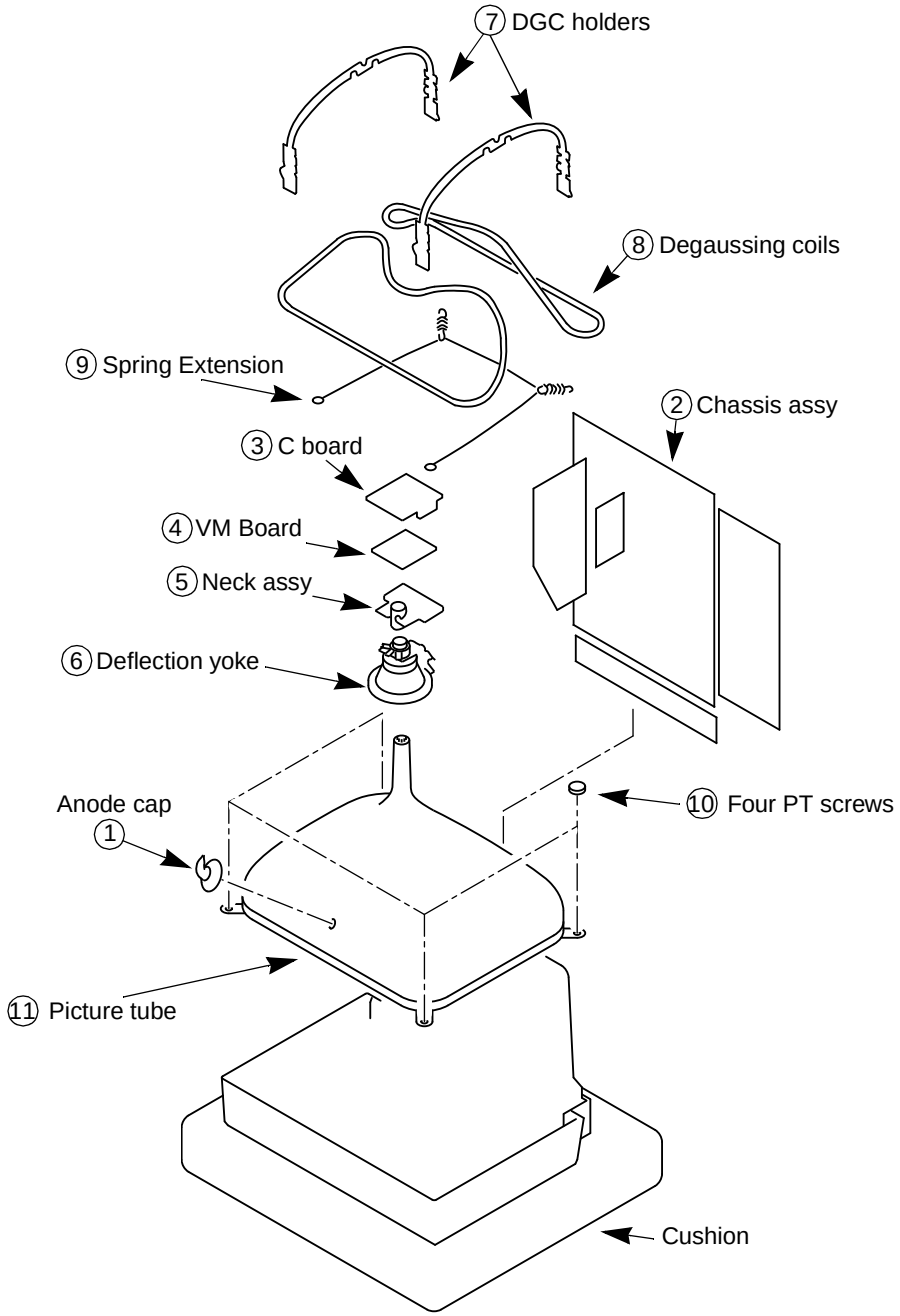


① Remove CN301 before removing A board

2-6. A EXTENSION BOARD



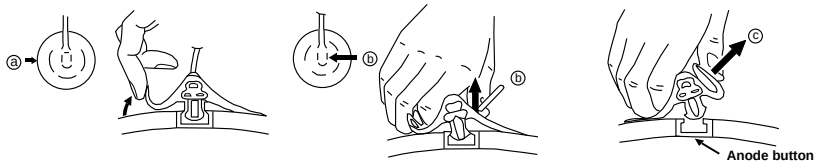
2-7. PICTURE TUBE REMOVAL



• REMOVAL OF ANODE-CAP

Note : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

*** REMOVING PROCEDURES.**



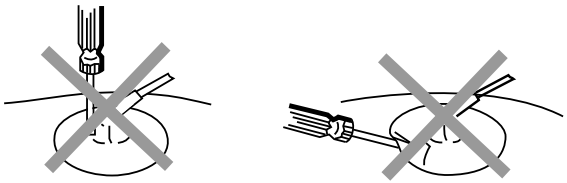
① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ

③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ

• HOW TO HANDLE THE ANODE-CAP

① To prevent damaging the surface of the anode-cap do not use sharp materials.
② Do not apply too great a pressure on the rubber, as this may cause damage to the anode connector.
③ A metal fitting called a shatter hook terminal is fitted inside the rubber cap. Do not turn the rubber foot over excessively this may cause damage if the shatter hook sticks out.



REMOVAL AND REPLACEMENT OF THE MAIN-BRACKET BOTTOM PLATES.

⚠ For safety reasons, on no account should the plates be removed and not refitted after servicing.

(1) REMOVING THE PLATES

In the event of servicing being required to the solder side of the D Board printed wiring board, the bottom plates fitted to the main chassis bracket require to be removed.
This is performed by cutting the gates with a sharp wire cutter at the locations indicated by arrows.

Note : There are 4 plates fitted to the main bracket and secured by 6 gates.
Only remove the necessary plate to gain access to the printed wiring board.

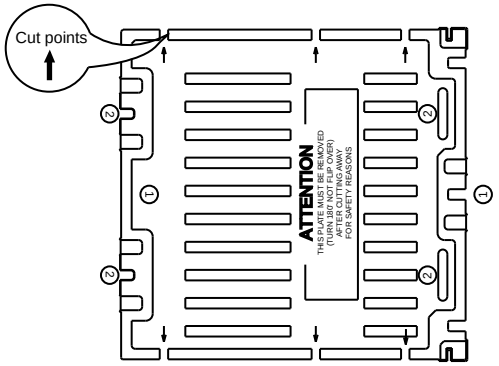


Fig 1

(2) REFITTING THE PLATES

Because the plates differ in size it is important that the correct plates are refitted in their original location.
The plates are identified by numerical markings on their top side e.g. 1,2

1. Identify the plate by locating its marking.
2. Rotate the plate through 180’ (do not flip over).
3. Locate the corresponding numerical markings indicated on the main chassis. See Fig 2.
4. Refit the plate as indicated in Fig 3 with the markings located next to each other.

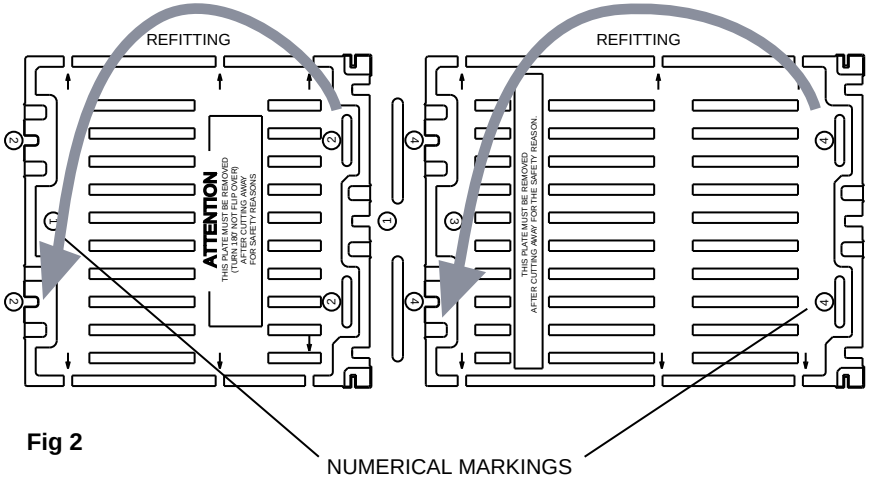


Fig 2

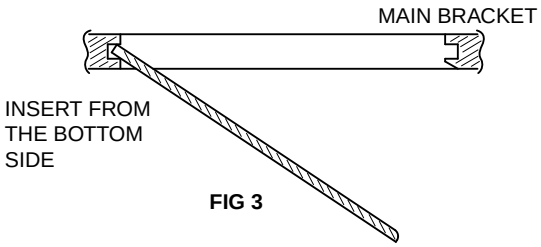


FIG 3

In the event of the plates requiring to be removed at a later stage, this can be achieved by inserting a screwdriver in the snap-recess indicated as in Fig 4 and lifting out.

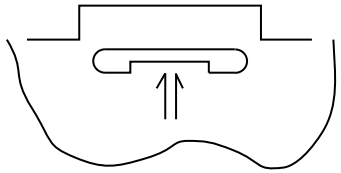


Fig 4

SECTION 3
SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches to the following settings:

Contrast ..... normal

Brightness ..... normal

Carry out the following adjustments in this order:

3-1. Beam Landing
3-2. Convergence
3-3. Focus
3-4. White balance

Note: Test equipment required
1. Color bar/pattern generator.
2. Degausser.
3. Digital multimeter.
4. Oscilloscope.

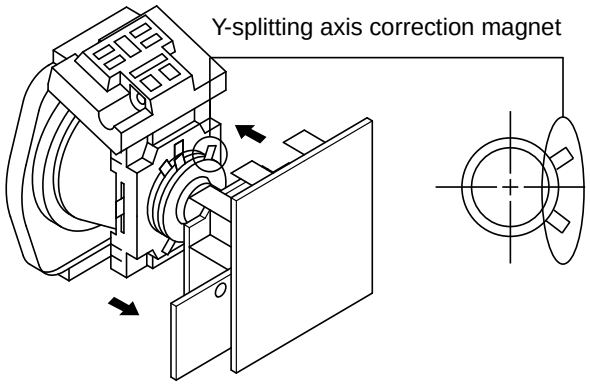
3-1. BEAM LANDING

Preparation:

1. In order to reduce the influence of geomagnetism on the set's picture tube, face it in an easterly or westerly direction.
2. Switch on the set's power and degauss with the degausser.

(1) Adjustment of Correction Magnet for Y-Splitting Axis

1. Input a crosshatch signal from the pattern generator.
2. Set the Picture control to minimum and confirm that the Brightness control is set to normal.
3. Position the neck assembly as indicated in Fig.3-2.
4. Move the deflection yoke as far forward as is possible.
5. Adjust the upper and lower pin symmetrically by opening or closing the Y-splitting axis correction magnets located on the neck assembly.
6. Return the deflection yoke to its original position.



Caution :

High voltages are present on the Deflection yoke terminals - take care when handling the Deflection yoke whilst carrying out adjustments.

(2) Landing

Note : Before carrying out the following adjustments adjust the magnets as indicated below [See Fig.3-3].

1. Input an all-white signal from the pattern generator. Maximize the picture setting and adjust the Brightness setting.
2. Rough-adjust the focus and horizontal convergence.
3. Loosen the deflection yoke screws and align the purity adjustment knob to its central position. [See Fig.3-1].
4. Switch from the all-white pattern to an all-green pattern.
5. Move the deflection yoke backwards and adjust with the purity magnet so that the green is at the centre and it aligns symmetrically. [See Fig.3-4].
6. Move the deflection yoke forward and adjust so that the entire screen becomes green.
7. Switch the raster signal to red, then to blue and verify the landing condition.
8. When the position of the deflection yoke has been determined, fasten the deflection yoke with the screw.
9. If the beam does not land correctly in all the corners of the screen, use magnets to correct it. [See Fig.3-5].

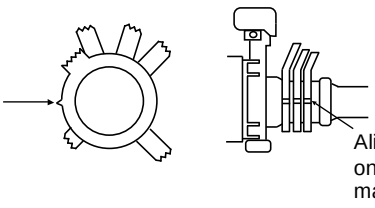


Fig.3-3

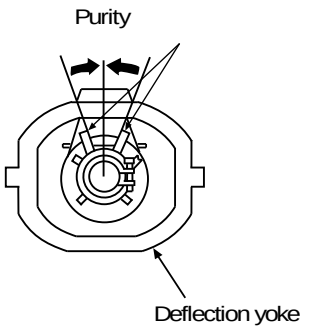


Fig.3-1

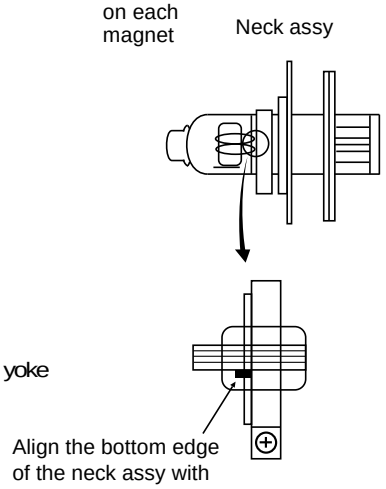


Fig.3-2

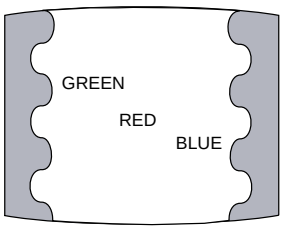


Fig.3-4

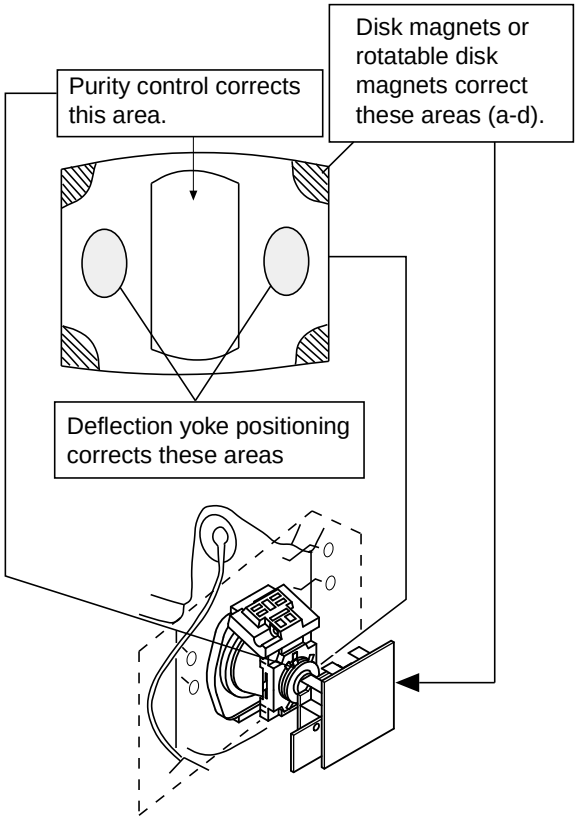
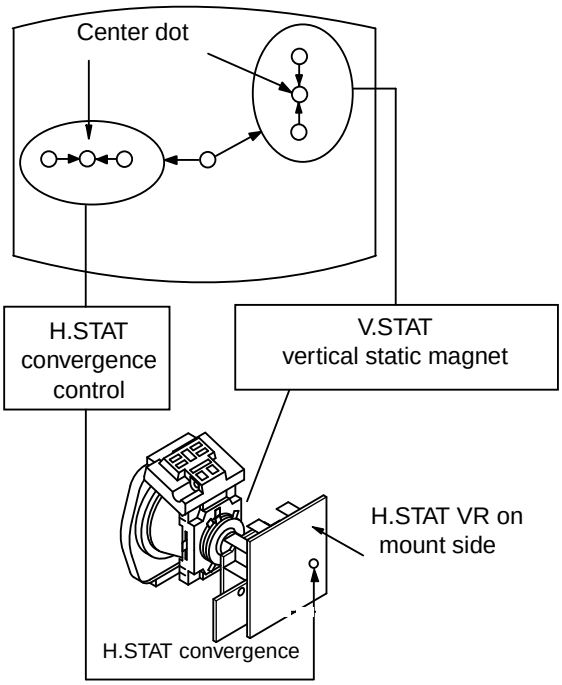

Disk magnets or rotatable disk magnets correct these areas (a-d).
Purity control corrects this area.
Deflection yoke positioning corrects these areas

Fig. 3-5

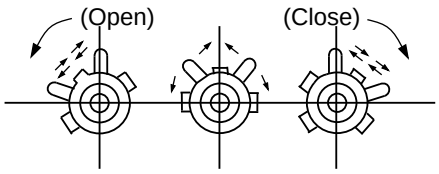
3-2. CONVERGENCE

(1) Screen centre convergence [Static convergence]

1. Input a dot signal from the pattern generator. Normalize the picture setting.
2. [Moving horizontally], adjust the H.STAT control so that the horizontal red, green and blue dots coincide at the centre of the screen.
3. [Moving vertically], adjust the V.STAT magnet so that the vertical red, green and blue dots coincide at the centre of the screen.

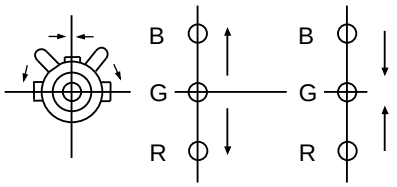


- If the horizontal dots are unable to coincide with the variable range of the H.STAT convergence, adjust together with the V.STAT convergence while tracking.
  [Adjust the convergence by tilting the V.STAT convergence or by opening and closing the V.STAT convergence.]

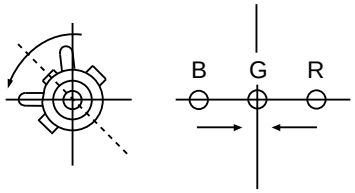


4. Movement of the red, green and blue dots by tilting the V.STAT magnet and by opening or closing the V.STAT magnet.

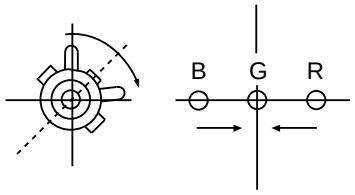
a). By opening or closing the V.STAT magnet, the red, green and blue dots move as indicated below.



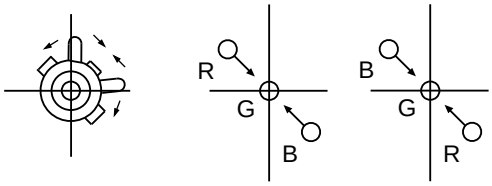
b). By rotating the V.STAT magnet counter clockwise, the red, green and blue dots move as indicated below.



c). By rotating the V.STAT magnet clockwise, the red, green and blue dots move in the direction indicated below.



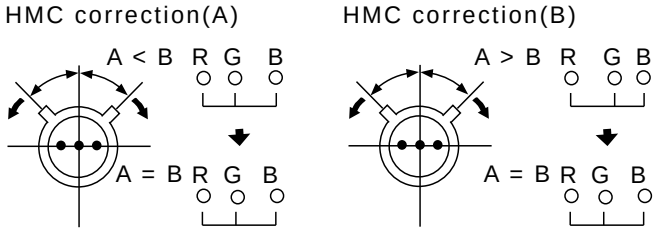
d). By opening or closing the V.STAT magnet, the red, green and blue dots move in the direction indicated below.



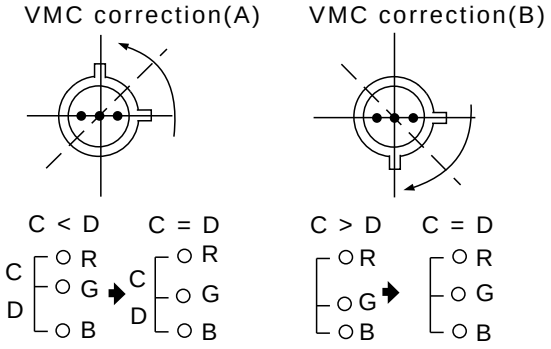
Note : If the blue dot does not coincide with the red and green points correct the points by using the BMC [Hexapole] magnet.

5. Correction for HMC [horizontal mis-convergence] and VMC [vertical mis-convergence] by using the BMC [Hexapole] magnet.

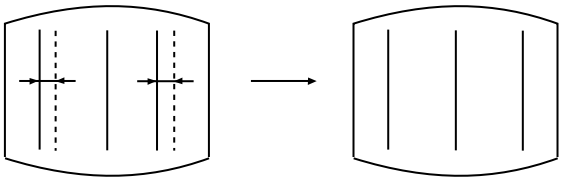
a). HMC correction by BMC [Hexapole] magnet and movement of the electron beam.



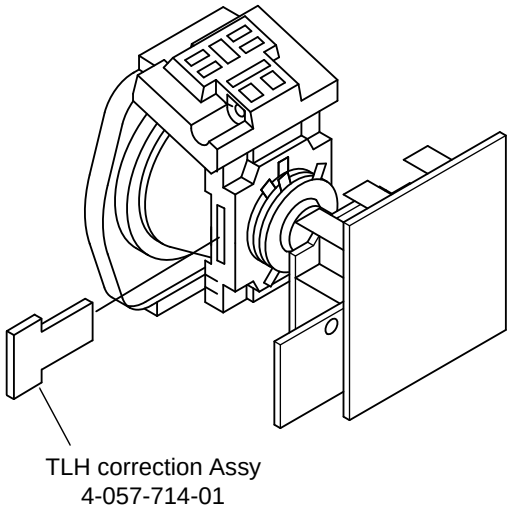
b). VMC correction by BMC [Hexapole] magnet and movement of the electron beam.



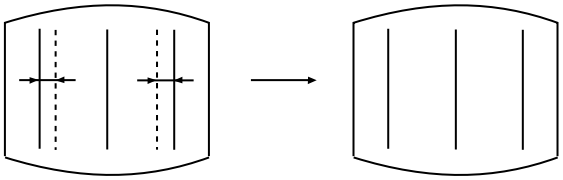
HAMP



6. HTIL correction can be performed by adding a THL correction ASSY to the DY.



HTIL



LAYOUT OF EACH CONTROL

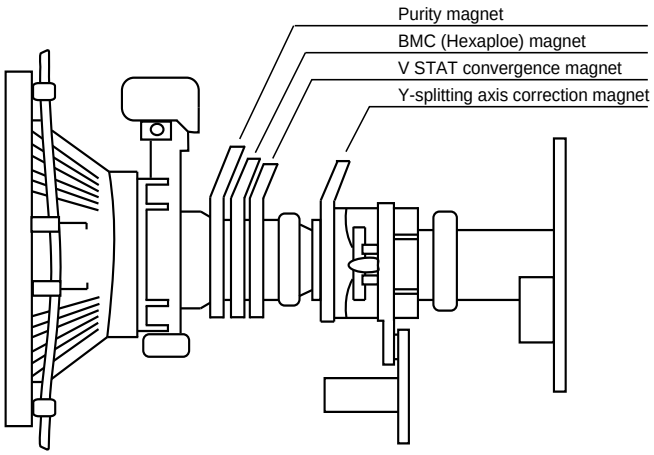
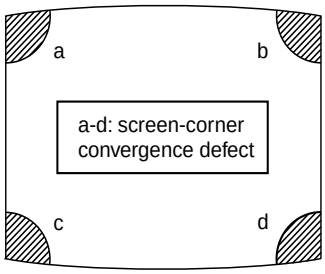
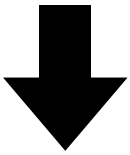
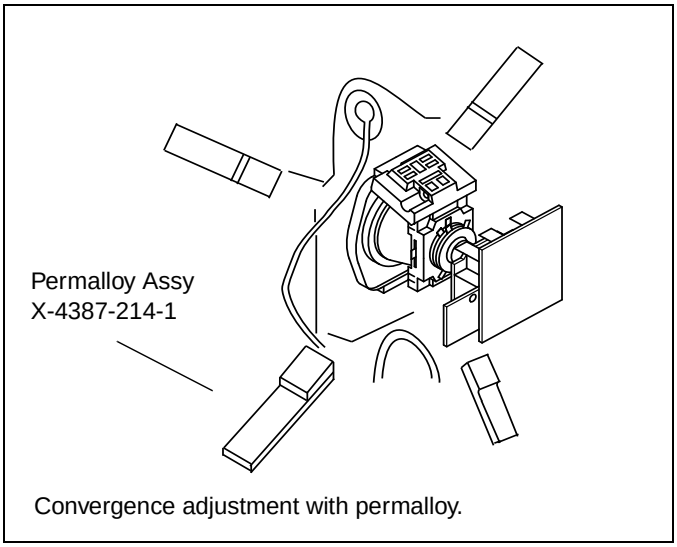


Fig 3-6

Note : If you are unable to adjust the corner convergence properly, this can be corrected with the use of permalloys.







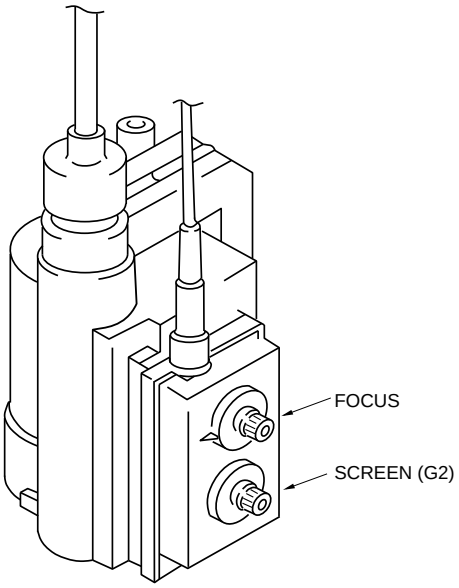
3-3. SCREEN (G2)

SCREEN G2 ADJUSTMENT

1. Input a dot signal from the pattern generator.
2. Set the Picture, Brightness and Colour to minimum.
3. Apply 175V DC from an external power supply to the R, G and B cathodes of the CRT.
4. Whilst watching the picture, adjust [SCREEN G2] located on the FBT [flyback transformer] to the point just before the flyback return lines disappear.

3-4. FOCUS

1. Receive a television broadcast signal.
2. Normalise the picture setting.
3 Adjust the focus control located on the FBT [flyback transformer] to obtain the best focus at the centre of the screen. Bring only the centre area of the screen into focus, the magenta-ring appears on the screen. In this case, adjust the focus to optimize the screen uniformly.



3-5. WHITE BALANCE

WHITE BALANCE ADJUSTMENT

1. Input an all white signal from the pattern generator.
2. Enter into the Service Mode.
3. Enter into the 'Picture Adjustment' service menu.
4. Select 'Sub contrast' and adjust to 7.
5. Select the 'Green drive' and adjust so that the white balance becomes optimum.
6. Select the 'Blue drive' and adjust so that the white balance becomes optimum.
7. Press the 'TV' button on the remote commander to return to TV operation.

PICTURE ADJUSTMENT

AFC mode	1
REF position	2
SCP BGR	1
SCP BGF	1
Trap fo	0
Sub contrast	Adj
Sub colour	Adj
Sub brightness	Adj
Sub hue	Adj
Green drive	Adj
Blue drive	Adj
Green cutoff	Adj
Blue cutoff	Adj
Gamma	0
Pre / overshoot	3
Y delay	3

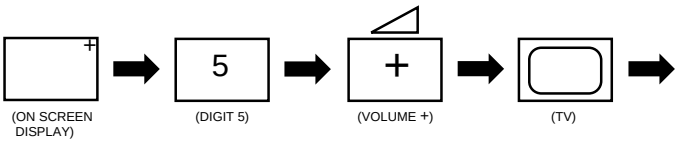
SECTION 4
CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

Service adjustments to this model can be performed using the supplied Remote Commander RM-887.

HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch and enter into the stand-by mode.
2. Press the following sequence of buttons on the Remote Commander.



- 'TT--' will appear in the upper right corner of the screen.
  Other status information will also be displayed.

3. Press 'MENU' on the remote commander to obtain the following menu on the screen.

TEST MENU

> Picture Adjustment
  Geometry
  Wide
  IC status
  MSP
  Dynamic Convergence
  Current TV status

4. Move to the corresponding adjustment using the button on the remote commander.
5. Press the + button to enter the selected adjustment.
6. Turn off the power to quit the service mode when adjustments have been completed.

PICTURE ADJUSTMENT

AFC mode	1
REF position	3
SCP BGR	1
SCP BGF	1
Trap fo	7
Sub contrast	Adj
Sub colour	Adj
Sub brightness	Adj
Green drive	Adj
Blue drive	Adj
Green cutoff	Adj
Blue cutoff	Adj
Gamma	0
Pre / overshoot	0
Y delay	5
D Pic	ON/OFF
D Colour	ON/OFF
DC Transfer	ON/OFF

GEOMETRY ADJUSTMENT - 4:3

V size	Adj
V position	Adj
S Correction	Adj
V Linearity	Adj
H size	Adj
H position	Adj
Pin Amp	Adj
Pin Phase	Adj
AFC Bow	Adj
AFC Angle	Adj
EHT V	1
EHT H	0
Lo Corn Pin	Adj
Up Corn Pin	Adj

WIDE ADJUSTMENT - 4:3

V Aspect	47
V Scroll	25
Upper V Lin	0
Lower V Lin	0
Left Blanking	1
Right Blanking	11

MSP	
AGC ON/OFF	ON
Constant gain CDB	0
FM prescale FMP	36
Zwei mono-st WHI	36
Zwei st-mono WLO	18
Zwei mono-bi WMH	36
Zwei bi-mono WLO	18
Time Zwei WML	41
Fawct limit	10
Fawct soll init FAW	12
Fawer tol	2
Nicam Err Max CCT	10
Nicam Err Min	0
Nicam Prescale NIP	97
Time Nicam	31
Carrier mute CRM	OFF
Audio clock ACO	HIZ
Scart prescale	25
Scart volume	64

IC STATUS (CXA2076 / CXA2040)	
CXA2076	
H lock	1
IKR	1
VNG	0
X-RAY	0
Colour system	3
CV1 sync	1
CXA2040	
Sync sep	1
S1 mode pin	01
S2 mode pin	01
TUNER	
Tuner status	01101011

TV STATUS BE3E	
Text system	C TEXT
Dolby	NO
Text language set	WEST/EAST/RUSSIAN
Menu language set	WEST/EAST/RUSSIAN
Destination	B/D/U/K/L/E/A/R
Scart 16:9	ON
RGB priority	ON
Ageing	OFF/ON
Size	28/32
Colour trap sw	SECAM/ALL
Velocity mod	ON/OFF
AFT STATUS	WINDOW/HIGH/LOW
Lumisponder Mode	OFF
Micro/Jungle	SDA30C263/CXA2076

Dynamic Convergence	
H stat	Adj Off - 63
H amp l	Adj Off - 63
H amp r	Adj Off - 63
Up Y	Adj Off - 63
Low Y	Adj Off - 63
Y up l	Adj Off - 63
Y up r	Adj Off - 63
Y low l	Adj Off - 63
Y low r	Adj Off - 63
Mbow up l	Adj Off - 63
Mbow up r	Adj Off - 63
Mbow low l	Adj Off - 63
Mbow low r	Adj Off - 63
V Stat	Adj Off - 63

SUB BRIGHTNESS ADJUSTMENT

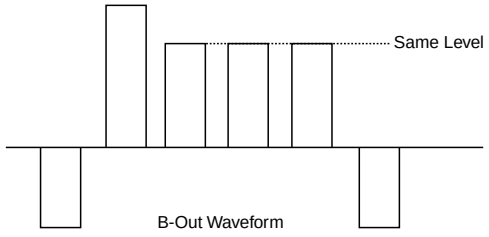
1. Input a Phillips pattern.
2. Set the picture control to minimum.
3. Enter into the ‘Picture Adjustment’ service menu.
4. Adjust the ‘Sub-Brightness’ data so that there is barely a difference between the 0 IRE and 10 IRE signal levels.

SUB CONTRAST ADJUSTMENT

1. Input a video that contains a small 100% area on a black background.
2. Set the picture control to maximum.
3. Connect an oscilloscope to Pin 3 of CN301 [A Board].
4. Enter into the ‘Picture Adjustment’ service menu.
5. Adjust the ‘Sub-contrast’ data to obtain a black to white amplitude of 2.50V.

SUB COLOUR ADJUSTMENT

1. Receive a PAL colour bar video signal.
2. Connect an oscilloscope to Pin 3 of CN301 [A Board].
3. Enter into the ‘Picture Adjustment’ service menu.
4. Adjust the ‘Sub-colour’ data so that the Cyan, Magenta and Blue colour bars are of equal height as indicated below.



Note: The data indicated in the ‘TV STATUS’ table is dependant on destination, screen size and country.

SYSTEM B/G, D/K, I & L I.F ADJUSTMENT

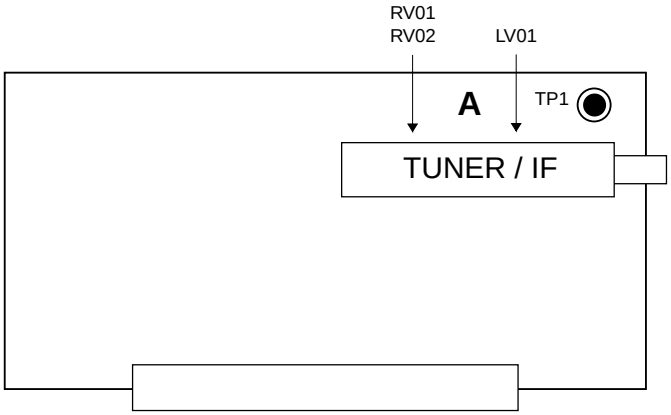
1. Input an off air signal of between 60-100dBuV / 75 ohm terminated, via the tuner socket.
2. Enter into the 'IF Adjustment' service mode [i.e 'TT59'] to fix the I.F frequency to 39.9MHz.
3. Enter into the service mode and select 'Current TV status'.
4. Adjust the I.F coil [LV01] until the 'AFT Status' indicates a 'Window' condition.

SYSTEM L BAND 1 I.F ADJUSTMENT

1. Input an off air signal of between 60-100dBuV / 75 ohm terminated, via the tuner socket.
2. Enter into the 'IF Adjustment' service mode [i.e 'TT59'] to fix the I.F frequency to 34.2MHz.
3. Enter into the service mode and select 'Current TV status'.
4. Adjust the RV02 control until the 'AFT Status' indicates a 'Window' condition.

TUNER AGC ADJUSTMENT

1. Receive a signal of 63dBuV / 75 ohm terminated, via the tuner socket.
2. Measure the voltage at test point 1 [A Board].
3. Adjust RV01 control to obtain a voltage of 3.0V +/- 0.3V.

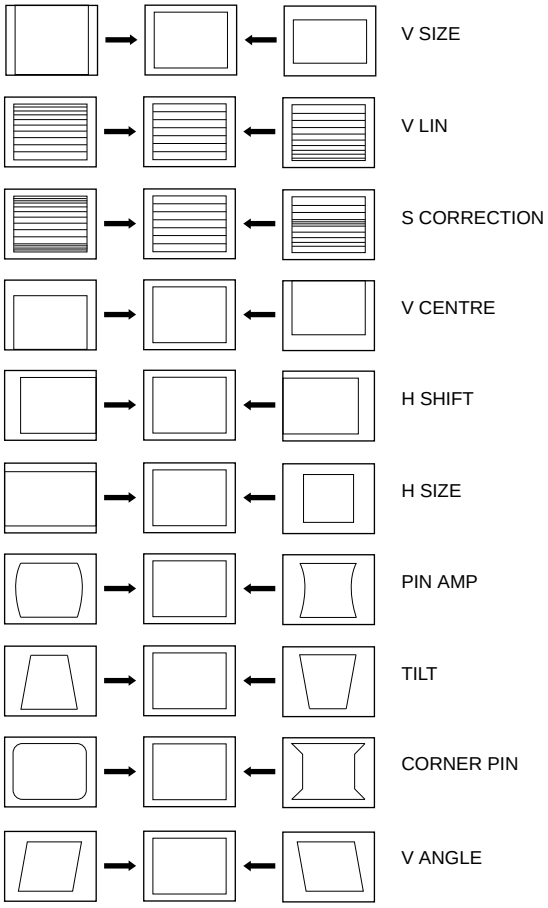


DEFLECTION SYSTEM ADJUSTMENT

1. Enter into the 'Geometry Adjustment' service menu.
2. Select and adjust each item in order to obtain the optimum image.

GEOMETRY ADJUSTMENT

V size	Adj
V position	Adj
S Correction	Adj
V Linearity	Adj
H size	Adj
H position	Adj
Pin Amp	Adj
Pin Phase	Adj
AFC Bow	Adj
AFC Angle	Adj
EHT V	1
EHT H	0
Lo Corn Pin	Adj
Up Corn Pin	Adj



4-2. 'TT' TEST MODE :

'TT' Mode is available by pressing the Test key twice. It is exited by pressing 0 twice, or by pressing the Test key, or by pressing the TV key, or by pressing the TV key, or by switching the set into standby.
The functions described below are available by pressing 2 digits:

00	Cancel Test mode
01	Picture Maximum
02	Picture Minimum
03	Volume & Headphone Volume 35%
04	Volume & Headphone Volume 50%
05	Volume & Headphone Volume 65%
06	Volume & Headphone Volume 80%
07	Ageing mode Enable/Disable
08	Shipping Condition
09	Display TV status
10	No function
11	Sub Picture adjustment
12	Sub Colour adjustment
13	Sub Brightness adjustment
14	Text H-Position adjustment
15	Rotation Test
16	Picture Level 50%
17	No function
18	No function
19	No function
20	No function
21	Destination A/D (East Menu/West Text)
22	Destination L (West Menu/West Text)
23	Destination E (West Menu/West Text)
24	Destination U (West Menu/ West Text)
25	Destination D (East Menu/Greek Text)
26	Destination B (East Menu/West Text)
27	Destination K (East Menu/East Text)
28	Destination R (Russian Menu/Russian Text)
29	No function
30	No function
31	Toggle Auto Shutoff Disable
32	Toggle Bit Error Rate Display
33	Toggle Terminal Debug Mode
34	No function
35	No function
36	No function
37	No function
38	Toggle AV3 Disable Bit
39	No function
40	No function
41	Re-initialize the NVM

42	Re-initialise geometry settings
43	Default Programme info in NVM with factory settings
44	Default favourite pages to 100,101,102 and 103
45	Switch off all Parental locks
46	Default Dynamic Convergence settings
47	Default MSP settings
48	Set NVM as Non-virgin
49	Set NVM as virgin
50	No function
51	Dolby Pro-Logic On, Volume 90%
52	Noise On Left Speaker
53	Noise On Right Speaker Only
54	Noise On Centre Speaker Only
55	Noise On Surround Speaker Only
56	Set Colour to Minimum and Picture to Maximum
57	Set Colour and Picture to Minimum and Adjust Sub-Brightness
58 - 67	No function
68	Pre-set AV Labels
69	Picture Blanking Pulse Disable/Enable
70	No function
71	Select Compact Text/Compact Text-2
72	Balance Left/Right (press RED key for balance left, YELLOW for balance right, and GREEN for centre balance)
73	Dual Sound Headphones (GREEN key for A, BLUE key for B
74	Dual Sound Speakers (GREEN key for A, BLUE key for B
75	DSP Bypass
76	Dolby Enabled/Disabled toggle
77	Setup trap switch
78	Set Screen Size
79	Wide Setup
80	No function
81	Velocity Mod ON
82	Velocity Mod OFF
83	Special Picture Mode - Personal mode, reset & brightness = 0
84	Text Interlace odd (Non interlace mode = 3)
85	Text Interlace even (Non interlace mode = 2)
86	Auto Cut Off ENABLE
87	Auto Cut Off DISABLE

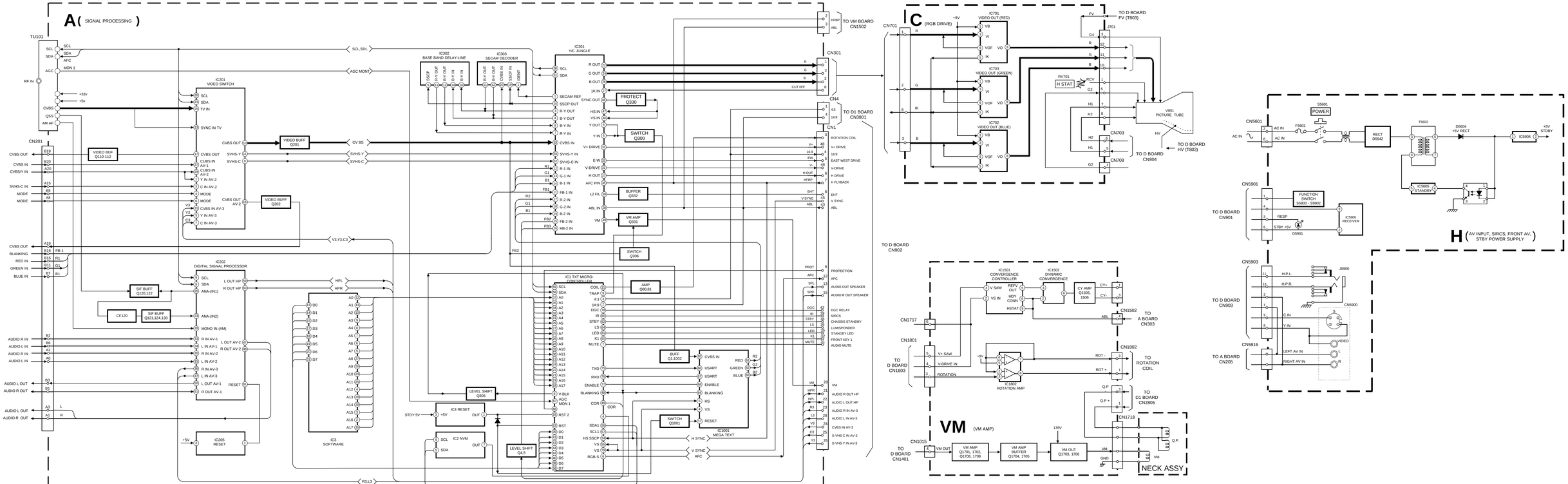
88	Diagnostics OFF
89	Diagnostics ON
90	No function
91	Clear & disable OSD
92	Enable OSD
93	D/K Nicam Enable
94	D/K Nicam Disable
95	Reset language select menu on power up
96	Set all programme labels to default

4-3. 'T' TEST MODE :

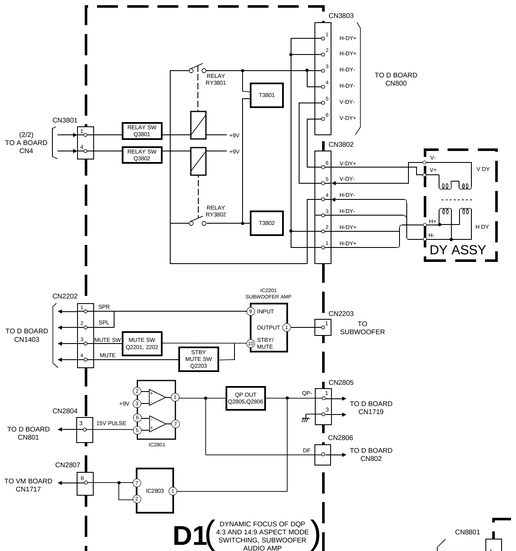
'T' Mode is available by pressing the Test key once. It is exited by pressing the Test key twice, or by pressing the TV key, or by switching the set into standby.
The functions described below are available by pressing the indicated key :

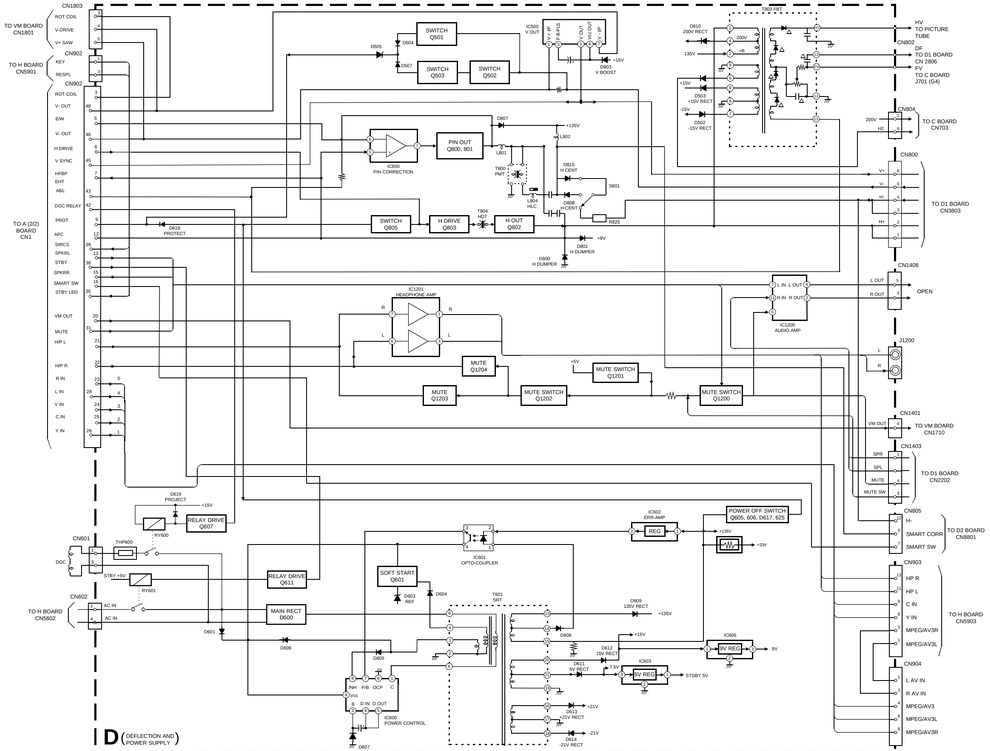
Key	T Mode Function
Volume +	Volume Maximum
Volume -	Volume Minimum
Picture +	Picture Maximum
Picture -	Picture Minimum
Colour +	Colour Maximum
Colour -	Colour Minimum
Brightness +	Brightness Maximum
Brightness -	Brightness Minimum
Hue +	Hue Maximum
Hue -	Hue Minimum
Sharpness +	Sharpness Maximum
Sharpness -	Sharpness Minimum
Balance Left	Balance Full Left
Balance Right	Balance Full Right
Treble +	Treble Maximum
Treble -	Treble Minimum
Bass +	Bass Maximum
Bass -	Bass Minimum
Analogue +	Select Analogue Value Maximum
Analogue -	Select Analogue Value Minimum

5-1 BLOCK DIAGRAMS (1)

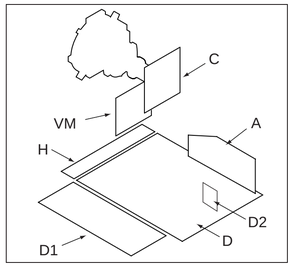


5-1 BLOCK DIAGRAMS (2)





5-2. CIRCUIT BOARD LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in µF unless otherwise noted.
- pF : µµF 50WV or less are not indicated except for electrolytic types.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5mm
Electrical power rating : 1/4W

- Chip resistors are 1/10W
- All resistors are in ohms.
  k = 1000 ohms, M = 1000,000 ohms

- : nonflammable resistor.
- : fusible resistor.
- : internal component.
- : panel designation or adjustment for repair.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All voltages are in Volts.
- Readings are taken with a 10Mohm digital mutimeter.
- Readings are taken with a color bar input signal.
- Voltage variations may be noted due to normal production tolerences.

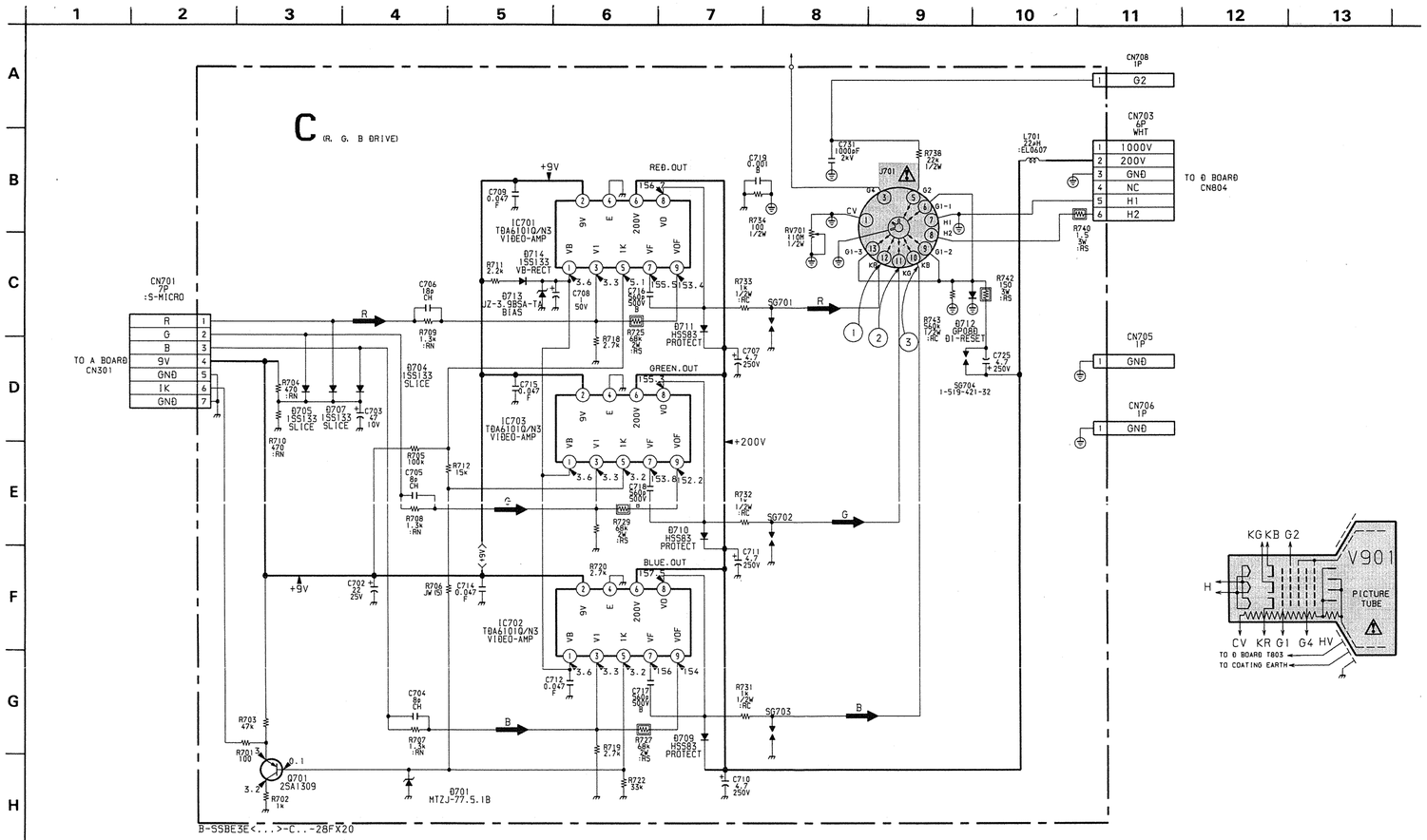
- : B + bus.
- : B - bus.
- : RF signal path.
- : earth - ground.
- : earth - chassis.

Reference Information

RESISTOR	**RN**	: METAL FILM
	RC	: SOLID
	FPRD	: NON FLAMMABLE CARBON
	FUSE	: NON FLAMMABLE FUSIBLE
	RS	: NON FLAMMABLE METAL OXIDE
	RB	: NON FLAMMABLE CEMENT
	RW	: NON FLAMMABLE WIREWOUND
		: ADJUSTMENT RESISTOR
COIL	**LF-8L**	: MICRO INDUCTOR
CAPACITOR	**TA**	: TANTALUM
	PS	: STYROL
	PP	: POLYPROPYLENE
	PT	: MYLAR
	MPS	: METALIZED POLYESTER
	MPP	: METALIZED POLYPROPYLENE
	ALB	: BIPOLAR
	ALT	: HIGH TEMPERATURE
	ALR	: HIGH RIPPLE

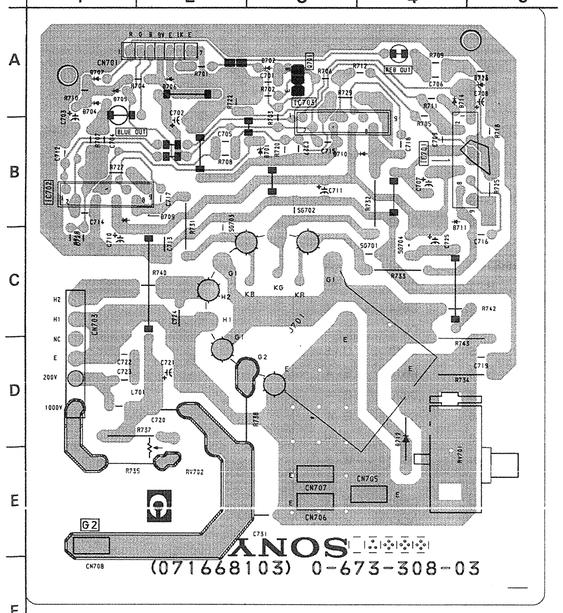
Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

Note : Les composants identifiés par une trame et par une marque ⚠ sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié. specified.



C [R, G, B DRIVE]

C Board



C BOARD

IC	
IC701	B - 4
IC702	B - 1
IC703	A - 3
TRANSISTOR	
Q701	A - 3
DIODE	
D701	B - 3
D704	A - 1
D705	A - 1
D707	A - 1
D709	B - 1
D710	B - 3
D711	B - 4
D712	D - 4
D713	A - 4
D714	A - 4

WAVEFORMS C BOARD

①	②	③
143 Vp-p (H)	139 Vp-p (H)	128 Vp-p (H)

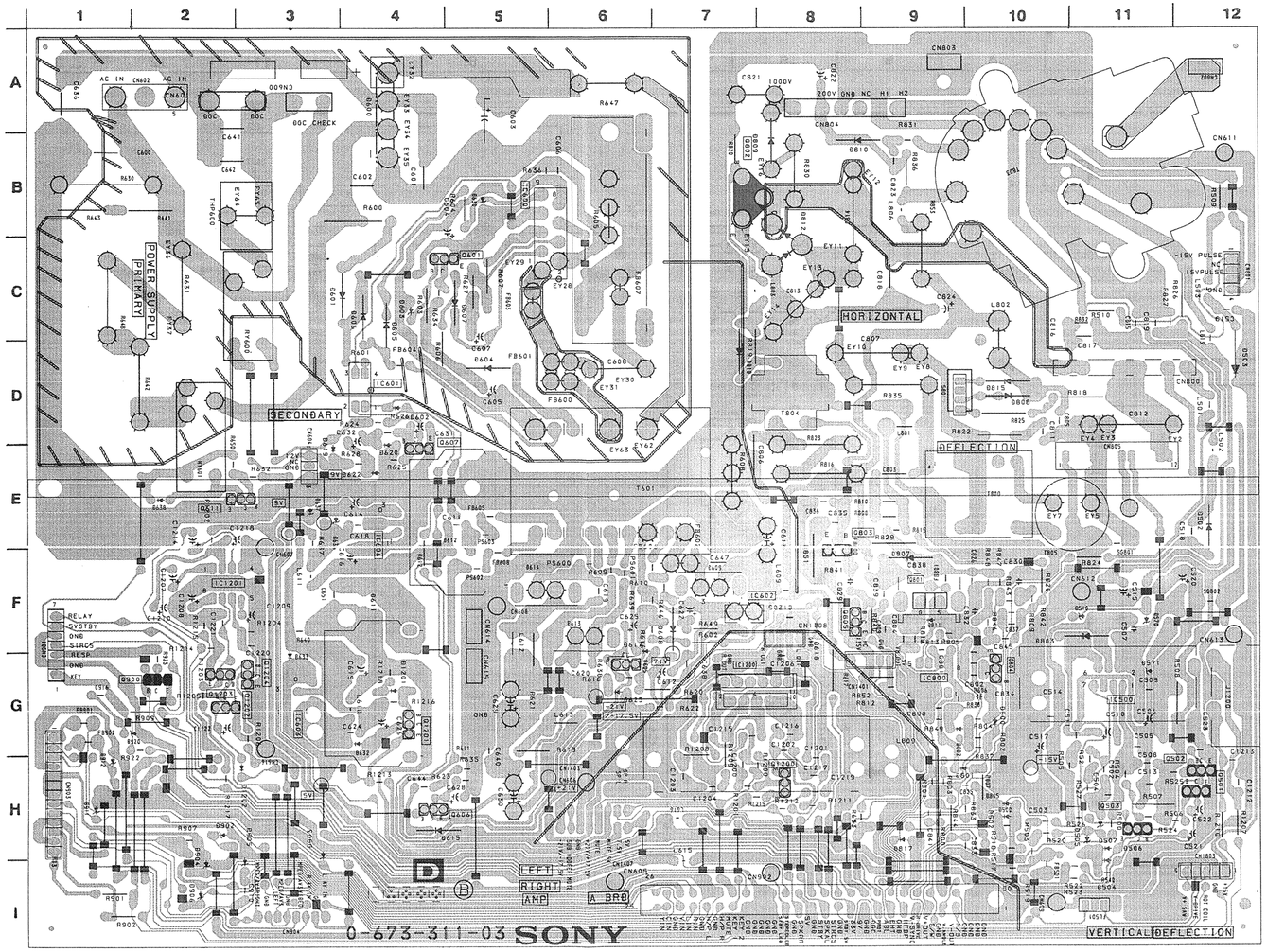
NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

D BOARD

IC		D600	A - 4
IC500	G - 11	D601	C - 4
IC600	B - 6	D603	C - 4
IC601	D - 4	D604	D - 5
IC602	F - 8	D605	C - 4
IC603	G - 3	D606	C - 4
IC606	E - 4	D607	C - 5
IC800	G - 9	D608	F - 7
IC1200	G - 8	D609	F - 7
IC1201	F - 3	D611	F - 4
TRANSISTOR		D612	E - 5
Q501	H - 12	D613	F - 6
Q502	H - 12	D614	F - 6
Q503	H - 11	D617	F - 7
Q601	C - 5	D618	G - 8
Q605	F - 7	D619	E - 4
Q606	H - 5	D620	E - 4
Q607	D - 5	D622	E - 4
Q611	E - 2	D625	G - 6
Q801	F - 9	D637	E - 3
Q802	B - 7	D638	E - 2
Q803	F - 9	D800	G - 10
Q805	F - 8	D801	G - 10
Q900	G - 2	D802	G - 10
Q1200	H - 8	D803	F - 11
Q1201	G - 4	D807	F - 9
Q1202	G - 3	D808	D - 10
Q1203	G - 3	D810	B - 8
Q1204	G - 3	D811	F - 9
DIODE		D812	B - 8
D500	H - 10	D815	D - 10
D502	H - 11	D817	H - 9
D503	I - 12	D902	H - 3
D504	I - 11	D903	H - 3
D505	H - 11	D904	H - 2
D506	H - 11	D905	H - 3
D507	H - 11	D906	I - 2
D510	F - 11	D920	G - 1
D570	F - 11	D1201	G - 4
D571	G - 11	D1202	H - 2

D [DEFLECTION & POWER SUPPLY]

D Board

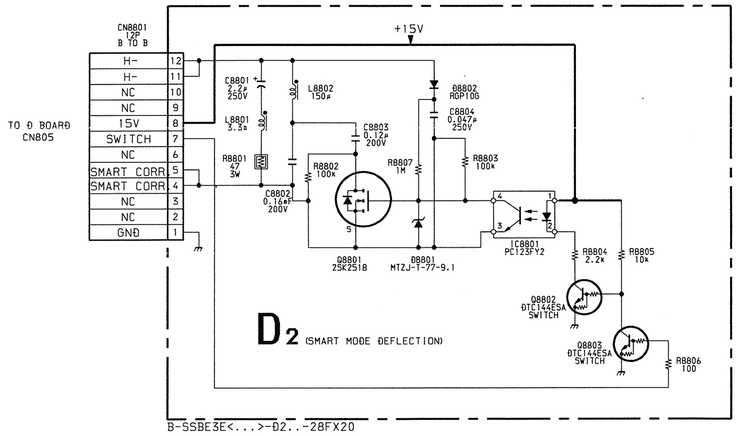


B-SSBE3E<..>-0..-28FX20

D (DEFLECTION & POWER SUPPLY)

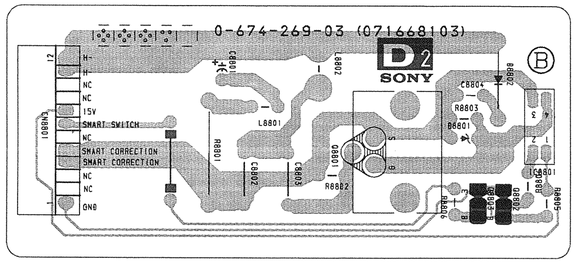
WAVEFORMS D BOARD

① 51 Vp-p (V)	② 2.7 Vp-p (H)	③ 12 Vp-p (H)	④ 51 Vp-p (H)



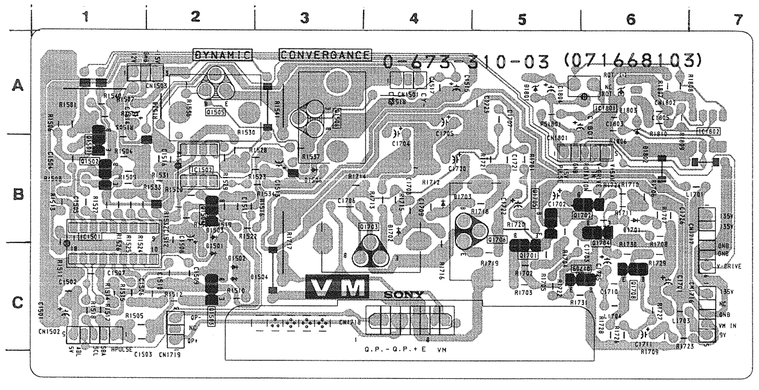
D2 [SMART MODE DEFLECTION]

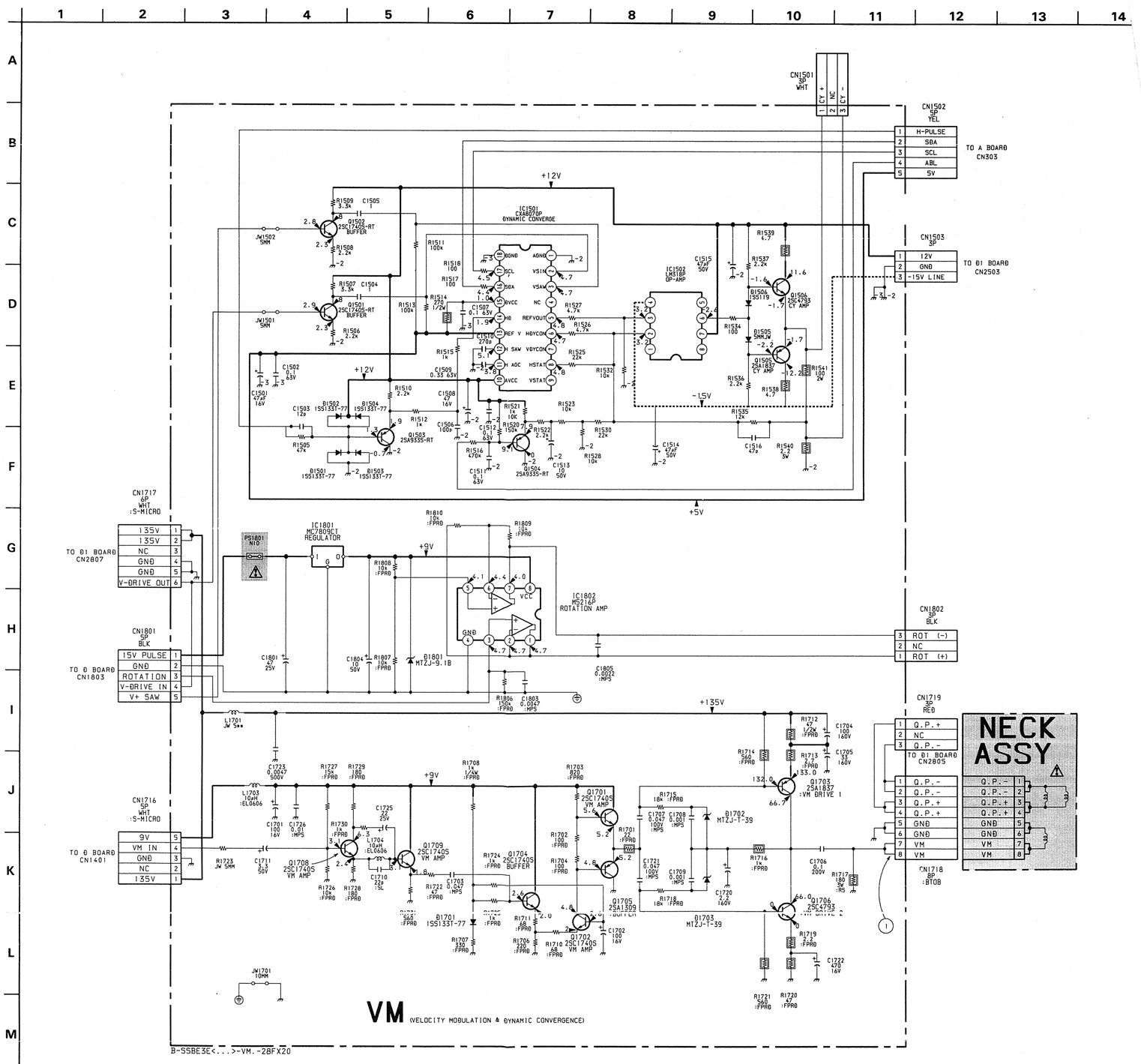
D2 Board



VM [VELOCITY MODULATION & DYNAMIC CONVERGENCE]

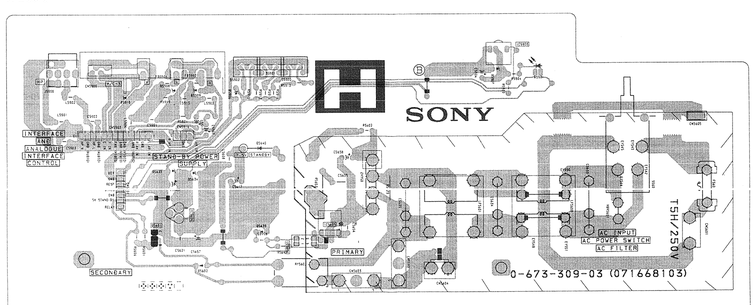
VM Board

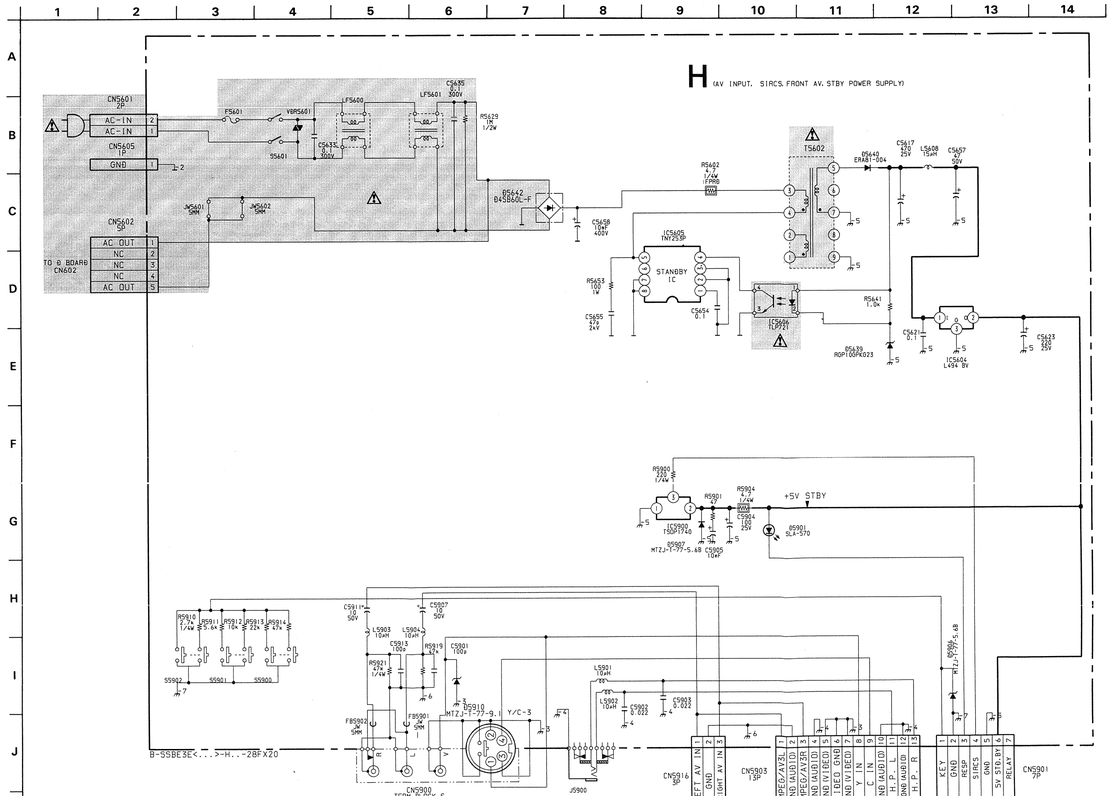




H [AV INPUT, SIRCS, FRONT AV STBY POWER SUPPLY]

H Board



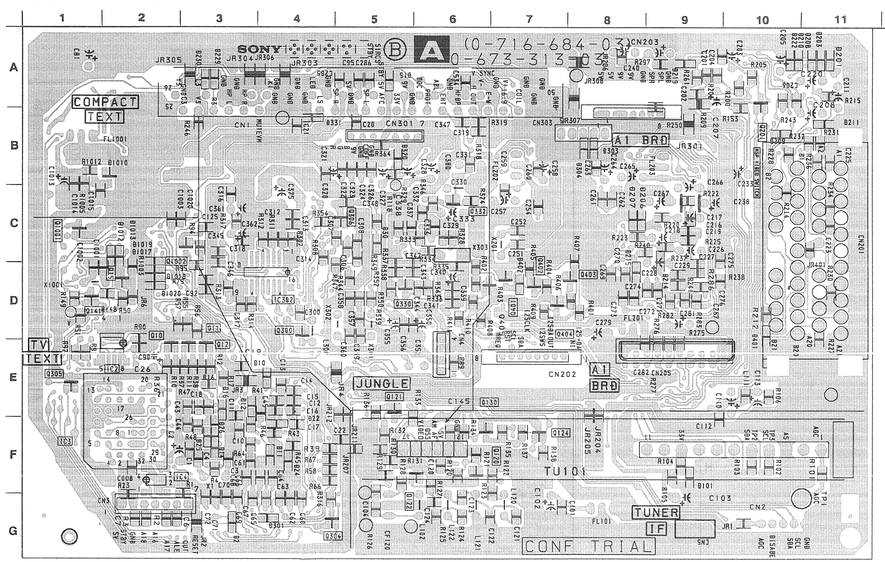


A BOARD

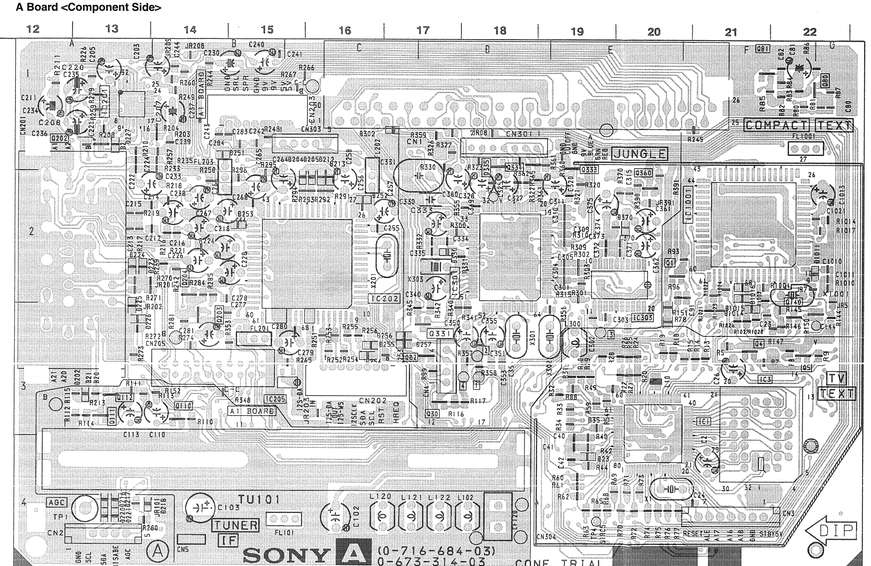
IC		Q403	D - 8
IC1	F - 21	Q404	E - 7
IC2	E - 2	Q405	D - 7
IC3	F - 2	Q1001	C - 1
IC4	G - 2	Q1002	C - 3
IC201	A - 13	**DIODE**	
IC202	C - 16	D2	G - 3
IC205	E - 15	D16	E - 3
IC301	C - 19	D30	C - 5
IC302	D - 4	D101	F - 9
IC303	D - 19	D201	A - 11
IC1001	C - 21	D202	E - 13
TRANSISTOR		D203	A - 11
Q1	D - 21	D204	B - 16
Q4	E - 22	D205	B - 16
Q15	D - 2	D206	C - 9
Q30	E - 17	D207	C - 9
Q80	A - 23	D208	A - 11
Q81	A - 22	D209	B - 11
Q82	E - 17	D210	A - 11
Q110	F - 14	D211	B - 11
Q111	E - 13	D212	B - 16
Q112	E - 13	D213	B - 16
Q120	F - 7	D214	D - 9
Q121	F - 5	D215	D - 9
Q122	F - 6	D216	G - 14
Q124	F - 7	D217	G - 14
Q130	F - 7	D218	G - 14
Q140	D - 22	D220	G - 14
Q141	D - 1	D221	G - 14
Q201	B - 10	D222	A - 10
Q202	B - 13	D223	D - 14
Q203	D - 15	D224	D - 14
Q204	D - 15	D225	D - 14
Q300	E - 4	D226	D - 14
Q304	G - 5	D227	B - 14
Q305	E - 1	D251	B - 15
Q306	C - 5	D302	B - 16
Q330	D - 6	D303	B - 8
Q331	D - 18	D304	B - 8
Q332	C - 6	D320	C - 5
Q333	B - 19	D331	B - 4
Q334	B - 18	D370	C - 20
Q335	B - 18	D401	E - 10
Q401	D - 7	D402	D - 7
Q402	D - 7	D1010	B - 2

A [SIGNAL PROCESSING]

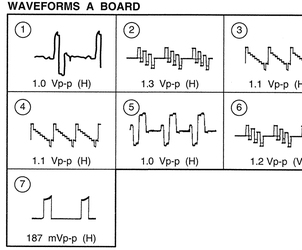
A Board <Conductor Side>

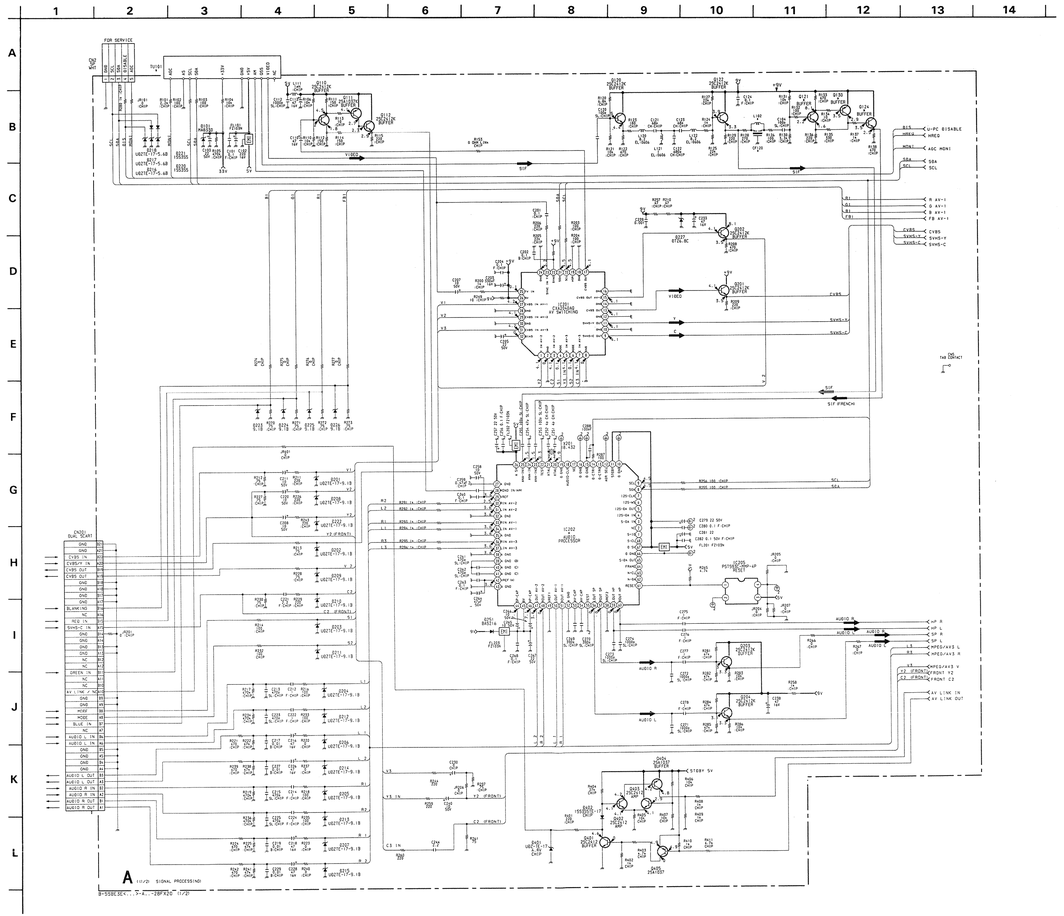


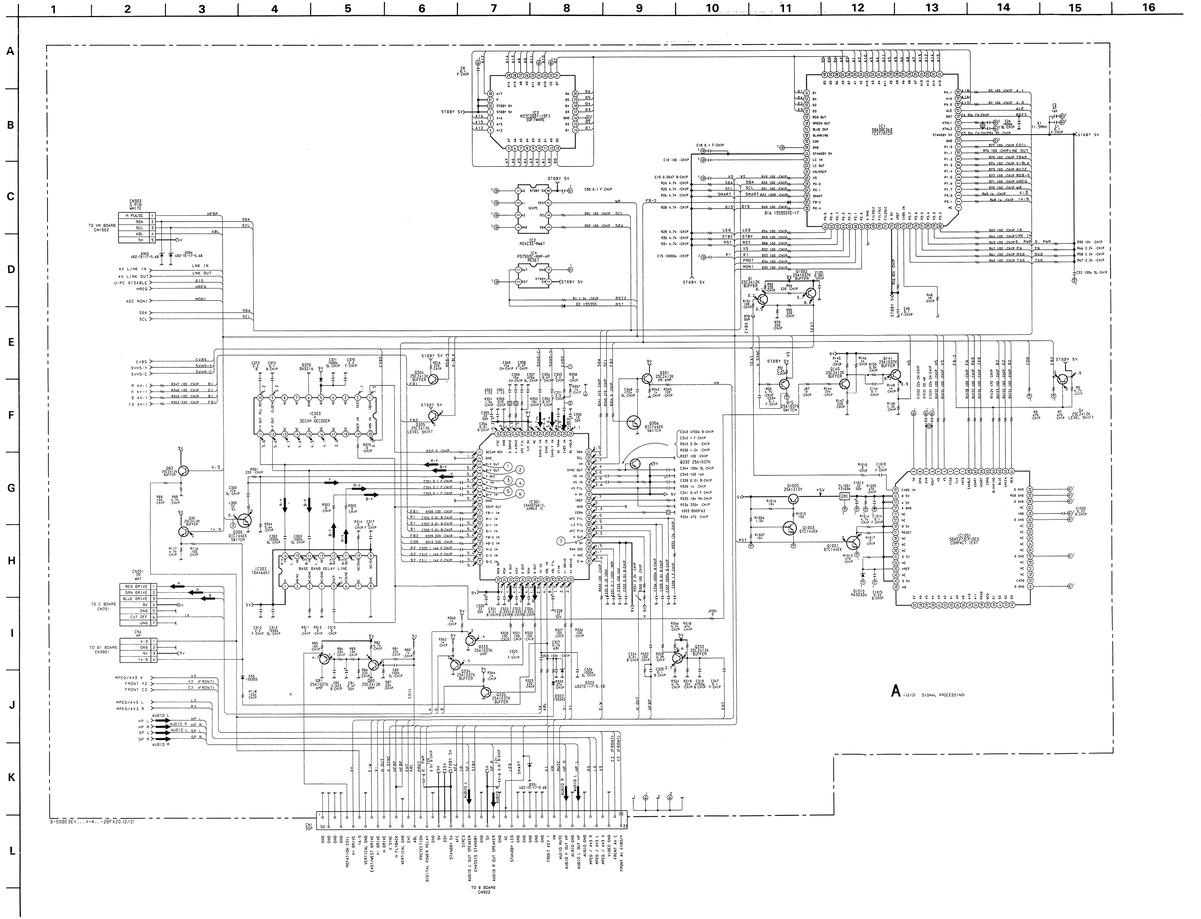
A Board <Component Side>



WAVEFORMS A BOARD

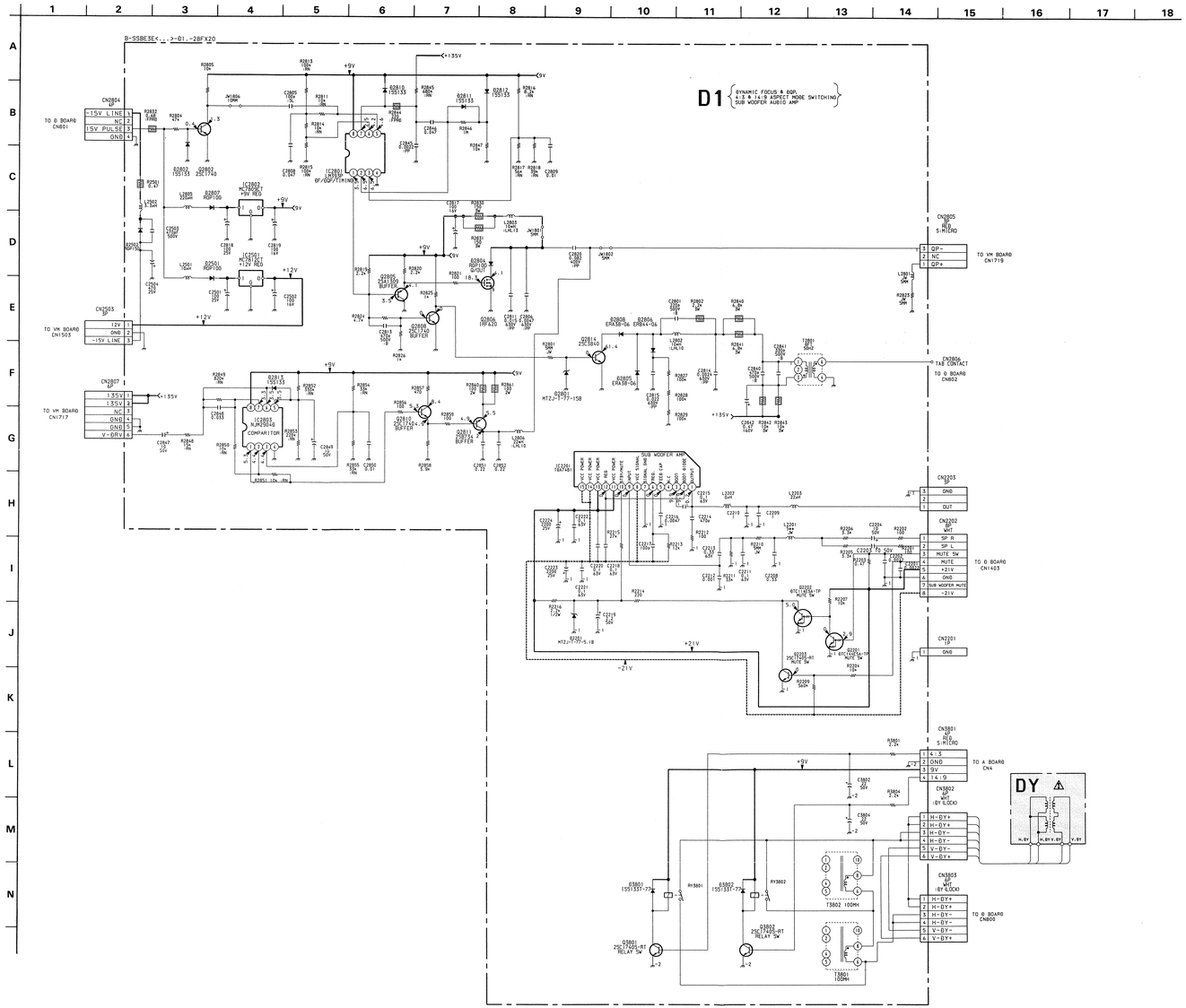


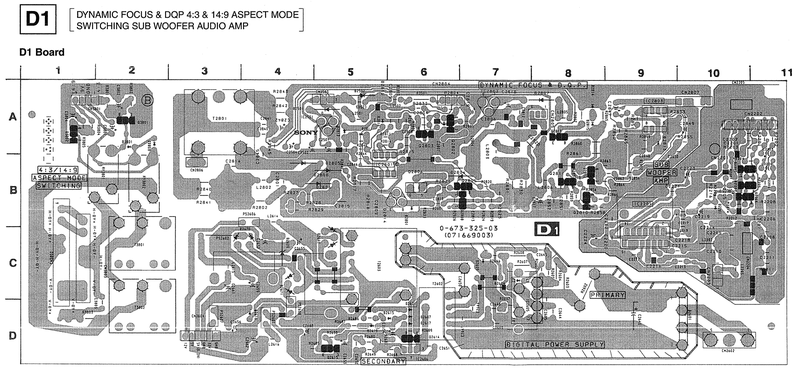




A BOARD * MARK

Ref	28FX20A	28FX20B	28FX20D	28FX20E	28FX20U
CF120	TRAP 6.5 MHZ	TRAP 6.5 MHZ	TRAP 6.5 MHZ	TRAP 6.5 MHZ	-
IC202	MSP3400D-PS-B4-T	MSP3410D-PS-B4-T	MSP3400D-PS-B4-T	MSP3410D-PS-B4-T	MSP3410D-PS-B4-T
IC303	-	TDA8395T/N3	TDA8395T/N3	TDA8395T/N3	-
L102	5.6UH	5.6UH	5.6UH	5.6UH	-
Q121	2SC3052-EF	2SC3052-EF	2SC3052-EF	2SC3052-EF	-
Q124	2SC3052-EF	2SC3052-EF	2SC3052-EF	2SC3052-EF	-
Q130	2SA1162-G	2SA1162-G	2SA1162-G	2SA1162-G	-
TU101	TUVIF/VIF (AEP)	TUVIF/VIF (FR)	TUVIF/VIF (AEP)	TUVIF/VIF (AEP)	TUVIF/VIF (UK)



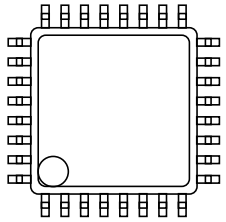


D1 BOARD

IC		DIODE	
IC2201	B - 9	D2201	B - 10
IC2501	A - 5	D2501	A - 5
IC2801	B - 5	D2502	A - 5
IC2802	A - 7	D2801	B - 6
IC2803	A - 9	D2802	F - 5
TRANSISTOR		D2804	B - 7
Q2201	B - 10	D2805	B - 4
Q2202	B - 10	D2806	B - 5
Q2203	B - 10	D2807	E - 4
Q2802	A - 6	D2808	B - 5
Q2805	B - 6	D2810	A - 5
Q2806	B - 6	D2811	F - 6
Q2808	B - 6	D2812	A - 5
Q2810	B - 8	D2813	F - 2
Q2811	B - 8	D3801	A - 2
Q2814	B - 6	D3802	A - 2
Q3801	A - 2		
Q3802	A - 1		

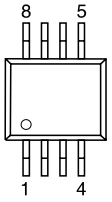
5-4. SEMICONDUCTORS

CXA2040Q-T4



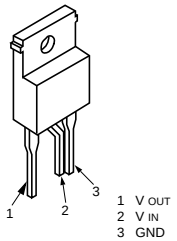
(TOP VIEW)

M24C332-MW6T



(TOP VIEW)

SE135N



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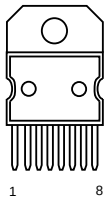
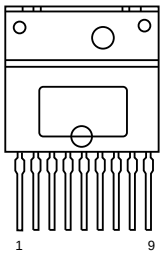
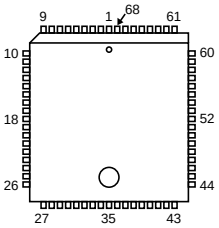


TDA8395T

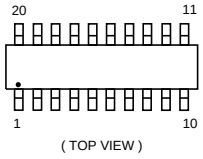
STR-S6709



MSP3400D-PS-B4-T
MSP3410D-PS-B4-T

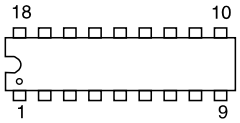


(TOP VIEW)



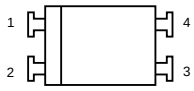
(TOP VIEW)

CXA8070P

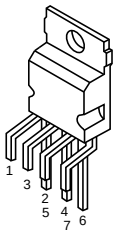


(TOP VIEW)

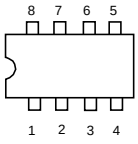
TLP721(D4-)



STV9379

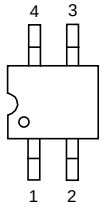


LM393P
M5216P
TDA2822M
TNY253P
µPC393C



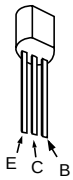
(TOP VIEW)

PST593C-MMP-4P

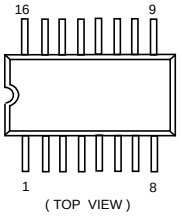


(TOP VIEW)

2SA733-K
2SA933AS
2SA933S
2SA1091-O
2SC3502-EF
2SC3601-E
2SC2808STP-R

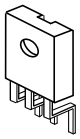


TDA4665T-T

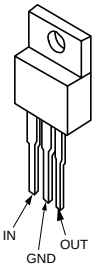


(TOP VIEW)

SBX1981-51



LM2940CT-5.0
LM2940CT
LM2940T-9.0
MCT7809CT
NJM78M09FA
µPC2405HF



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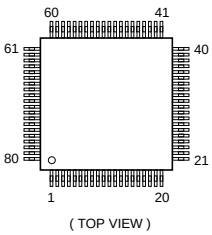
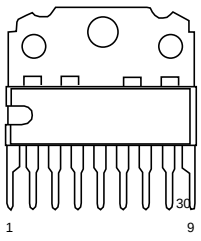
SDA3OC263-GEG



(TOP VIEW)

TDA6101Q/N3



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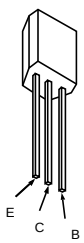
DTC114ES
DTC143TS
DTC144ESA
2SC1740S-RT



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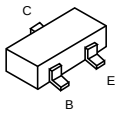
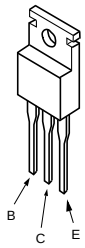
2SA1162-G
2SC2412K



IRF620



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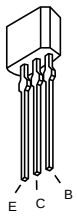

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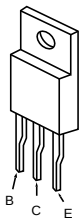

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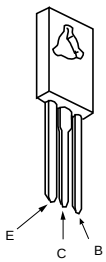

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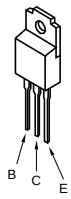

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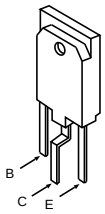
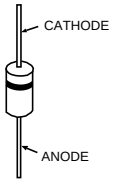


EG-1Z-V1
EGP20G
EL1Z
EM1-V1
EU-1-V1
EU2A
EU2-V1
FML-G12S
GP08D
HSS83TD
RGP10GPKG23
RGP15GPKG23



BAS216
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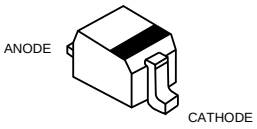
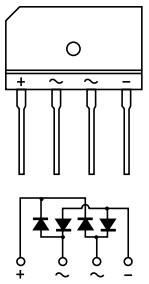
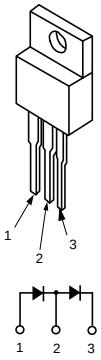
DTZ9.1
DTZ33B
RD5.65-B
MA8330
1SS355TE-17
UDZ-TE-17-5.6B
HDZ-TE-17-6.8B
UDZ-TE-17-9.1B



D4SB60L



FMS-3FU



ERA38-06TP1
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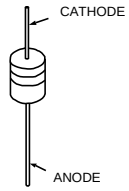
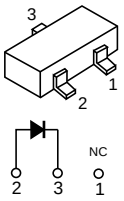
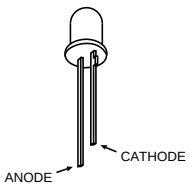
MTZJ-5.1B
MTZJ-5.6B
MTZJ-6.8C
MTZJ-9.1
MTZJ-T-77-9.1A
MTZJ-77-22B
RD3.9ESB2
RD5.1ESB2
RD5.6ESB2
RD6.8ESB2
RD10ESB2
RD15ES-B2
RD39ES-B2
1SS133T-77



MA3030-H (TX)

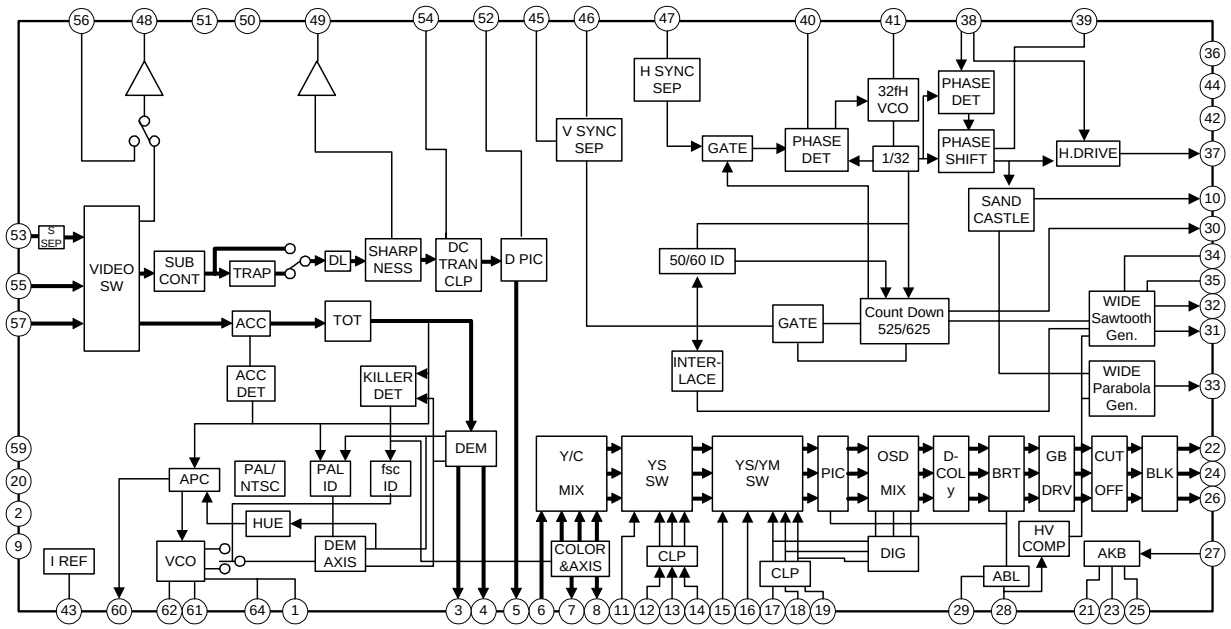


SLA-570KT3F

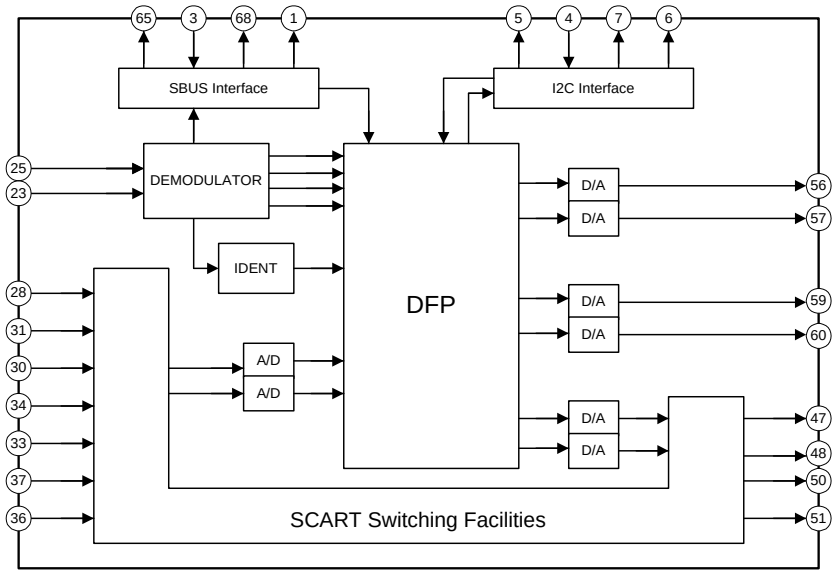


5-5. IC BLOCK DIAGRAMS (1)

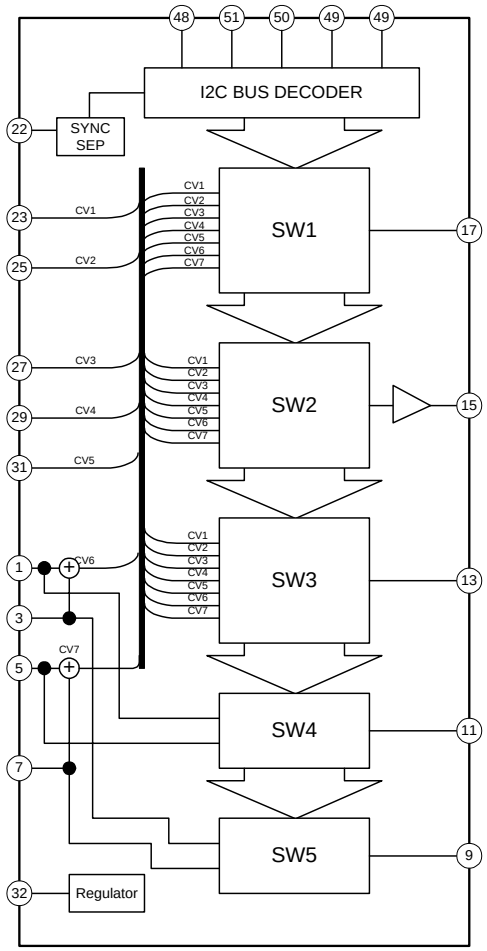
A BOARD IC301 CXA2076Q-TL



A BOARD IC202 MSP3410D

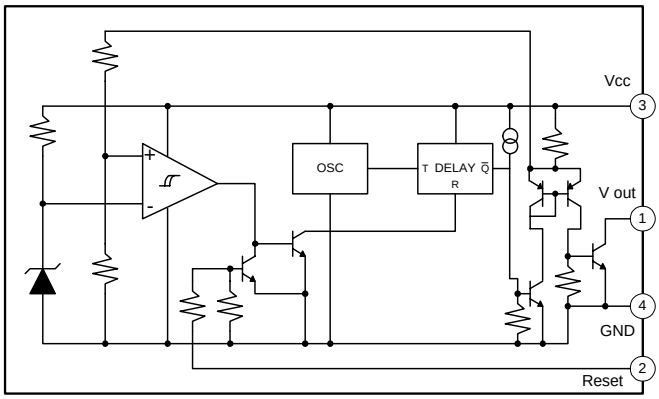


A BOARD IC201 CXA2040AQ

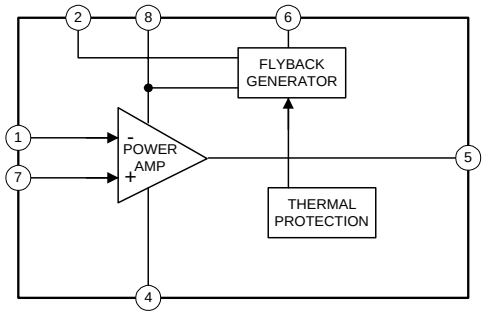


5-5. IC BLOCK DIAGRAMS (2)

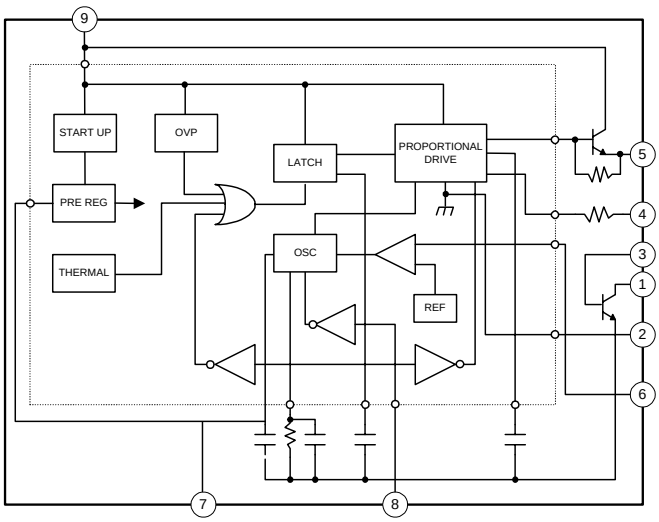
A BOARD IC4 PST593C



D BOARD IC500 STV9379



D BOARD IC600 STR-S6709



SECTION 6
EXPLODED VIEWS

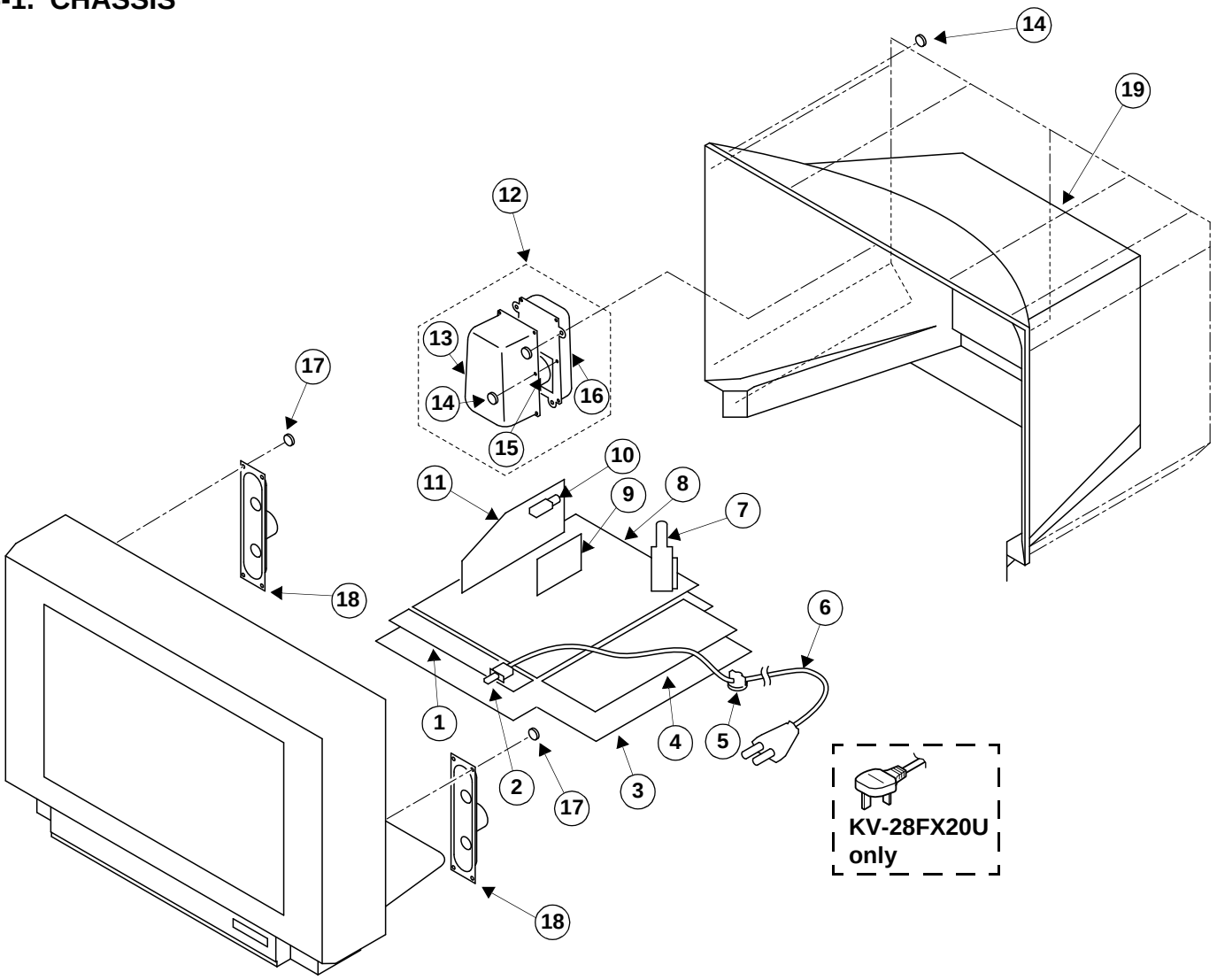
Note : Les composants indentifies par une trame et par une marque ⚠ sonte d'une importance critique pour la securite. Ne les remplacer que par des pieces du numero specifie.

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

NOTE :

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remarks column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

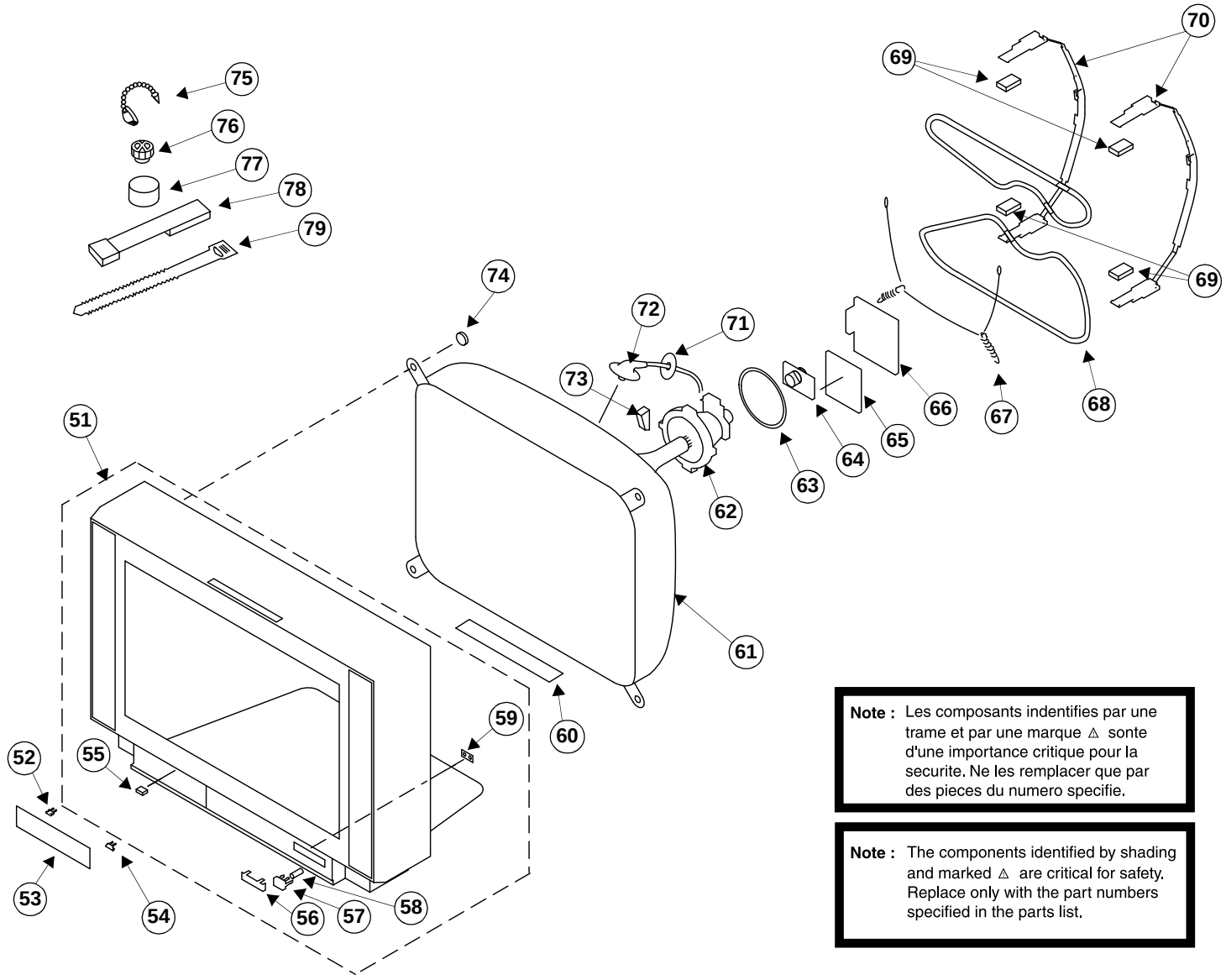
6-1. CHASSIS



REF. NO.		PART.NO	DESCRIPTION	REMARK
1		*A-1646-183-A	H BOARD, COMPLETE	
2	⚠	1-571-433-21	SWITCH, PUSH (AC POWER)	
3		*4-204-752-01	BRACKET, MAIN	
4		*A-1640-350-A	D1 BOARD, COMPLETE	
5		*4-202-531-01	AC CORD LOCK (SC)	
6	⚠	1-765-286-11	CORD POWER (KV-28FX20A/28FX20B/28FX20D/ KV-28FX20E)	
	⚠	1-776-204-12	CORD POWER (FILTER) (KV-28FX20U)	
7	⚠	1-453-308-21	TRANSFORMER ASSY, FLYBACK (NX-4521)	
8		*A-1642-253-A	D BOARD, COMPLETE	
9		*A-1642-254-A	D2 BOARD, COMPLETE	
10		1-693-338-11	TUNER/VIF (AEP) (KV-28FX20A/28FX20D/ KV-28FX20E)	
		1-693-340-11	TUNER/VIF (FR) (KV-28FX20B)	
		1-693-339-11	TUNER/VIF (UK) (KV-28FX20U)	

REF. NO.	PART.NO	DESCRIPTION	REMARK
11	*A-1632-848-A	A BOARD, COMPLETE (KV28FX20A)	
	*A-1632-847-A	A BOARD, COMPLETE (KV28FX20B)	
	*A-1632-846-A	A BOARD, COMPLETE (KV28FX20D)	
	*A-1632-849-A	A BOARD, COMPLETE (KV28FX20E)	
	*A-1632-850-A	A BOARD, COMPLETE (KV28FX20U)	
12	*A-1674-139-A	SP BLOCK ASSY	13-16
13	*4-204-775-11	BOX, WOOFER	
14	4-039-358-01	SCREW (4x16), (+) BV TAPPING	
15	1-529-417-11	SUB WOOFER SPEAKER	
16	*4-204-776-11	PORT WOOFER	
17	4-384-096-01	SCREW (4x16), TAPPING + P	
18	1-529-408-11	SPEAKER 4.2 x 24CM	
19	4-204-733-01	COVER, REAR	

6-2. PICTURE TUBE



Note : Les composants indentifies par une trame et par une marque ⚠ sonte d'une importance critique pour la securite. Ne les remplacer que par des pieces du numero specifie.

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

REF. NO.		PART.NO	DESCRIPTION	REMARK
51		X-4200-470-1	BEZNET ASSY	55-59
			(KV-28FX20A/28FX20B/28FX20D/	
			KV-28FX20E/28FX20U)	
		X-4200-470-3	BEZNET ASSY	55-59
			(KV-28FX201A/28FX201B/	
			KV-28FX201D/28FX201E)	
52		4-045-250-01	DAMPER	
53		4-204-731-11	DOOR	
54		4-202-555-01	SHAFT DOOR	
55		4-042-192-11	CATCHER, PUSH	
56		4-204-730-11	WINDOW ORNAMENTAL	
57		4-204-728-01	BUTTON, POWER	
58		4-202-964-11	SPRING	
59		4-204-729-01	GUIDE LIGHT	
60		4-203-128-41	SHEET, BLOTTING	
61	⚠	8-737-785-05	PICTURE TUBE (W66LLX010X)	
62	⚠	1-451-481-11	DEFLECTION YOKE (Y28RCV2)	

REF. NO.		PART.NO	DESCRIPTION	REMARK
63		1-452-896-11	COIL, NA ROTATION (RT200)	
64	⚠	8-453-011-11	NECK ASSY, NA299-M	
65		*A-1644-098-A	VM BOARD, COMPLETE	
66		*A-1638-126-A	C BOARD, COMPLETE	
67		4-200-433-01	SPRING, EXTENSION	
68	⚠	1-416-466-11	COIL, DEMAGNETIC	
69		*4-203-390-01	CUSHION DGC	
70		*4-057-303-01	HOLDER, DGC	
71		4-202-554-01	HOLDER, HV CABLE	
72	⚠	1-251-374-31	CAP ASSY, HIGH VOLTAGE	
73		3-704-495-01	SPACER, DY	
74		4-036-188-01	SCREW, SELF TAPPING	
75		4-308-870-00	CLIP, LEAD WIRE	
76		1-452-094-00	MAGNET, ROTATABLE DISK; 15MM Ø	
77		1-425-032-00	MAGNET,DISK; 10MM Ø	
78		X-4387-214-1	PERMALLOY ASSY, CORRECTION	
79		3-701-007-00	BAND, BINDING	

SECTION 7
ELECTRICAL PARTS LIST

Note : Les composants indentifies par une trame et par une marque ⚠ sonte d'une importance critique pour la securite. Ne les remplacer que par des pieces du numero specifie.

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- RESISTORS
- All resistors are in ohms.
- F : nonflammable.

When indicating parts by reference number, please include the board name.

CAPACITORS MF : mF, PF : mmF

COILS MMH : mH , uH

A

REF. NO.	PART.NO	DESCRIPTION	REMARK
	*A-1632-848-A	A BOARD, COMPLETE (KV-28FX20A)	
		**********	
	*A-1632-847-A	A BOARD, COMPLETE (KV-28FX20B)	
		**********	
	*A-1632-846-A	A BOARD, COMPLETE (KV-28FX20D)	
		**********	
	*A-1632-849-A	A BOARD, COMPLETE (KV-28FX20E)	
		**********	
	*A-1632-850-A	A BOARD, COMPLETE (KV-28FX20U)	
		**********	
	1-750-797-11	SOCKET, PLCC	
		< CAPACITOR >	
C1	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C2	1-104-664-11	ELECT 47MF 20%	16V
C3	1-163-104-00	CERAMIC CHIP 30PF 5%	50V
C4	1-163-104-00	CERAMIC CHIP 30PF 5%	50V
C8	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C10	1-216-073-00	RES,CHIP 10K 5%	1/10W
C15	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V
C18	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C19	1-163-017-00	CERAMIC CHIP 0.0047MF 10%	50V
C20	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V
C21	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V
C22	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C24	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C45	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C80	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C81	1-126-959-11	ELECT 0.47MF 20%	50V
C82	1-163-037-11	CERAMIC CHIP 0.022MF 10%	50V
C90	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C101	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C102	1-126-934-11	ELECT 220MF 20%	16V
C103	1-126-965-11	ELECT 22MF 20%	50V
C104	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C110	1-104-664-11	ELECT 47MF 20%	16V
C112	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C113	1-104-664-11	ELECT 47MF 20%	16V
C120	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C121	1-163-113-00	CERAMIC CHIP 68PF 5%	50V
C122	1-163-137-00	CERAMIC CHIP 680PF 5%	50V
C123	1-163-113-00	CERAMIC CHIP 68PF 5%	50V
C124	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C125	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C144	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C201	1-164-004-11	CERAMIC CHIP 0.1MF 10%	25V
C202	1-164-004-11	CERAMIC CHIP 0.1MF 10%	25V
C203	1-104-661-91	ELECT 330MF 20%	16V
C204	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C205	1-126-965-11	ELECT 22MF 20%	50V
C207	1-126-964-11	ELECT 10MF 20%	50V
C208	1-126-964-11	ELECT 10MF 20%	50V
C211	1-126-964-11	ELECT 10MF 20%	50V
C212	1-164-346-11	CERAMIC CHIP 1MF	16V
C213	1-163-133-00	CERAMIC CHIP 470PF 5%	50V
C214	1-164-346-11	CERAMIC CHIP 1MF	16V
C215	1-163-133-00	CERAMIC CHIP 470PF 5%	50V
C216	1-104-664-11	ELECT 47MF 20%	16V
C217	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V
C218	1-104-664-11	ELECT 47MF 20%	16V
C219	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V
C220	1-126-964-11	ELECT 10MF 20%	50V
C221	1-164-505-11	CERAMIC CHIP 2.2MF	16V
C222	1-164-346-11	CERAMIC CHIP 1MF	16V
C223	1-163-133-00	CERAMIC CHIP 470PF 5%	50V
C224	1-164-346-11	CERAMIC CHIP 1MF	16V
C225	1-163-133-00	CERAMIC CHIP 470PF 5%	50V
C226	1-104-664-11	ELECT 47MF 20%	16V
C227	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V
C228	1-104-664-11	ELECT 47MF 20%	16V
C229	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V
C230	1-216-295-91	SHORT 0	
C233	1-104-664-11	ELECT 47MF 20%	16V
C238	1-104-664-11	ELECT 47MF 20%	16V
C239	1-163-141-00	CERAMIC CHIP 0.001MF 5%	50V
C240	1-126-964-11	ELECT 10MF 20%	50V

A

REF. NO.	PART.NO	DESCRIPTION			REMARK
C244	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C251	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V
C252	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V
C253	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C254	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C255	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C256	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C257	1-126-965-11	ELECT	22MF	20%	50V
C258	1-126-964-11	ELECT	10MF	20%	50V
C259	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C260	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C261	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C262	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C263	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C264	1-126-963-11	ELECT	4.7MF	20%	50V
C265	1-126-964-11	ELECT	10MF	20%	50V
C266	1-126-964-11	ELECT	10MF	20%	50V
C267	1-126-965-11	ELECT	22MF	20%	50V
C268	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C269	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C270	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C271	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C272	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C273	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C274	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C275	1-164-346-11	CERAMIC CHIP	1MF		16V
C276	1-164-346-11	CERAMIC CHIP	1MF		16V
C277	1-164-346-11	CERAMIC CHIP	1MF		16V
C278	1-164-346-11	CERAMIC CHIP	1MF		16V
C279	1-126-965-11	ELECT	22MF	20%	50V
C280	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C281	1-126-965-11	ELECT	22MF	20%	50V
C282	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C288	1-163-117-91	CERAMIC CHIP	100PF	5%	50V
C300	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C301	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C302	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C303	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C304	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C305	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C306	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C307	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C308	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C309	1-164-346-11	CERAMIC CHIP	1MF		16V
C310	1-164-346-11	CERAMIC CHIP	1MF		16V
C311	1-164-346-11	CERAMIC CHIP	1MF		16V
C312	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C313	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C315	1-216-295-91	SHORT	0		
C317	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C319	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C320	1-126-965-11	ELECT	22MF	20%	50V
C321	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C322	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C323	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C324	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C325	1-164-346-11	CERAMIC CHIP	1MF		16V
C326	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C327	1-130-770-00	FILM	0.15MF	5%	63V
C328	1-126-965-11	ELECT	22MF	20%	50V
C329	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C330	1-137-581-11	FILM	0.1MF	5%	100V
C331	1-137-581-11	FILM	0.1MF	5%	100V
C332	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C333	1-126-933-11	ELECT	100MF	20%	16V
C334	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C335	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C336	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C337	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C338	1-164-346-11	CERAMIC CHIP	1MF		16V
C339	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C340	1-126-933-11	ELECT	100MF	20%	16V
C341	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C342	1-164-346-11	CERAMIC CHIP	1MF		16V
C343	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C344	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C347	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C348	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C350	1-126-964-11	ELECT	10MF	20%	50V
C351	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C352	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C353	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C354	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C355	1-126-965-11	ELECT	22MF	20%	50V
C356	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C357	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C358	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C359	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C360	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C370	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C371	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C372	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C373	1-164-489-11	CERAMIC CHIP	0.22MF	10%	16V
C534	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C1001	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C1002	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C1010	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C1013	1-126-965-11	ELECT	22MF	20%	50V
C1014	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C1015	1-164-489-11	CERAMIC CHIP	0.22MF	10%	16V
C1020	1-164-489-11	CERAMIC CHIP	0.22MF	10%	16V

REF. NO.	PART.NO	DESCRIPTION	REMARK
		< FILTER >	
CF120	1-409-327-00	TRAP, CERAMIC (6.5MHZ)	(KV-28FX20A/28FX20B/28FX20D/28FX20E)
		< CONNECTOR >	
CN1	1-695-302-11	CONNECTOR, BOARD TO BOARD 50P	
CN2	*1-564-508-11	PLUG, CONNECTOR 5P	
CN4	*1-568-879-11	PIN, CONNECTOR 4P	
CN5	1-695-915-11	TAB (CONTACT)	
CN201	1-766-296-21	CONNECTOR, DUAL SCART	
CN301	*1-568-882-51	PIN, CONNECTOR 7P	
CN303	*1-568-880-51	PIN, CONNECTOR 5P	
		< DIODE >	
D2	8-719-988-61	DIODE 1SS355TE-17	
D16	8-719-988-61	DIODE 1SS355TE-17	
D30	8-719-988-61	DIODE 1SS355TE-17	
D101	8-719-977-81	DIODE DTZ33B	
D201	8-719-977-22	DIODE DTZ9.1	
D202	8-719-977-22	DIODE DTZ9.1	
D203	8-719-977-22	DIODE DTZ9.1	
D204	8-719-977-22	DIODE DTZ9.1	
D205	8-719-977-22	DIODE DTZ9.1	
D206	8-719-977-22	DIODE DTZ9.1	
D207	8-719-977-22	DIODE DTZ9.1	
D208	8-719-977-22	DIODE DTZ9.1	
D209	8-719-977-22	DIODE DTZ9.1	
D210	8-719-977-22	DIODE DTZ9.1	
D211	8-719-977-22	DIODE DTZ9.1	
D212	8-719-977-22	DIODE DTZ9.1	
D213	8-719-977-22	DIODE DTZ9.1	
D214	8-719-977-22	DIODE DTZ9.1	
D215	8-719-977-22	DIODE DTZ9.1	
D216	8-719-158-15	DIODE RD5.6SB	
D217	8-719-158-15	DIODE RD5.6SB	
D218	8-719-158-15	DIODE RD5.6SB	
D220	8-719-988-61	DIODE 1SS355TE-17	
D221	8-719-988-61	DIODE 1SS355TE-17	
D222	8-719-977-22	DIODE DTZ9.1	
D223	8-719-977-22	DIODE DTZ9.1	
D224	8-719-977-22	DIODE DTZ9.1	
D225	8-719-977-22	DIODE DTZ9.1	
D226	8-719-977-22	DIODE DTZ9.1	
D227	8-719-977-13	DIODE DTZ6.8C	
D251	8-719-047-16	DIODE BAS216	
D302	8-719-988-61	DIODE 1SS355TE-17	
D303	8-719-158-15	DIODE RD5.6SB	
D304	8-719-158-15	DIODE RD5.6SB	
D320	8-719-977-22	DIODE DTZ9.1	
D331	8-719-158-15	DIODE RD5.6SB	
D370	8-719-047-16	DIODE BAS216	
D401	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D402	8-719-988-61	DIODE 1SS355TE-17	
D1010	8-719-036-58	DIODE MA3030-H(TX)	
		< ENCAPSULATED FILTER >	
FL101	1-236-071-11	ENCAPSULATED COMPONENT	
FL201	1-236-071-11	ENCAPSULATED COMPONENT	
FL202	1-236-071-11	ENCAPSULATED COMPONENT	
FL203	1-236-071-11	ENCAPSULATED COMPONENT	
FL1001	1-236-071-11	ENCAPSULATED COMPONENT	
		< IC >	
IC1	8-759-376-77	IC SDA30C263-GEG	
IC2	8-759-524-94	IC M24C32-MW6T	
IC3	8-759-598-92	IC M27C2001-15C1A001	
IC4	8-759-394-57	IC PST593C-MMP-4P	
IC201	8-752-081-26	IC CXA2040AQ-T4	
IC202	8-759-584-22	IC MSP3400D-PS-B4-T	(KV-28FX20A/28FX20D)
	8-759-491-94	IC MSP3410D-PS-B4-T	(KV-28FX20B/28FX20E/28FX20U)
IC205	8-759-394-57	IC PST593C-MMP-4P	
IC301	8-752-081-43	IC CXA2076Q-TL	
IC302	8-759-565-20	IC TDA4665T/V5-118	
IC303	8-759-430-79	IC TDA8395T/N3	(KV-28FX20B/28FX20D/28FX20E)
IC1001	8-759-376-76	IC SDA5273CP-GEG	
		< COIL >	
L102	1-408-600-21	INDUCTOR 5.6UH	(KV-28FX20A/28FX20B/ KV-28FX20D/28FX20E)
L111	1-410-993-22	INDUCTOR CHIP 1UH	
L120	1-408-602-31	INDUCTOR 8.2UH	
L121	1-408-591-21	INDUCTOR 1UH	
L122	1-408-602-31	INDUCTOR 8.2UH	
L300	1-408-607-21	INDUCTOR 22UH	
		< TRANSISTOR >	
Q1	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q4	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q15	8-729-216-22	TRANSISTOR 2SA1162-G	
Q30	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q80	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q81	8-729-216-22	TRANSISTOR 2SA1162-G	
Q82	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q110	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q111	8-729-216-22	TRANSISTOR 2SA1162-G	
Q112	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q120	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q121	8-729-620-06	TRANSISTOR 2SC3052-EF	(KV-28FX20A/28FX20B/28FX20D/28FX20E)
Q122	8-729-620-06	TRANSISTOR 2SC3052-EF	

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REF. NO.	PART.NO	DESCRIPTION	REMARK
Q124	8-729-620-06	TRANSISTOR 2SC3052-EF (KV-28FX20A/28FX20B/28FX20D/28FX20E)	
Q130	8-729-216-22	TRANSISTOR 2SA1162-G (KV-28FX20A/28FX20B/28FX20D/28FX20E)	
Q140	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q141	8-729-216-22	TRANSISTOR 2SA1162-G	
Q201	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q202	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q203	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q204	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q300	1-801-806-11	TRANSISTOR DTC144EKA	
Q304	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q305	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q306	1-801-806-11	TRANSISTOR DTC144EKA	
Q330	8-729-216-22	TRANSISTOR 2SA1162-G	
Q331	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q332	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q333	8-729-216-22	TRANSISTOR 2SA1162-G	
Q334	8-729-216-22	TRANSISTOR 2SA1162-G	
Q335	8-729-216-22	TRANSISTOR 2SA1162-G	
Q401	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q402	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q403	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q404	8-729-216-22	TRANSISTOR 2SA1162-G	
Q405	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1001	1-801-806-11	TRANSISTOR DTC144EKA	
Q1002	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1003	8-729-901-22	TRANSISTOR DTC144EK	
Q1005	8-729-209-73	TRANSISTOR 2SA1213Y	
		< RESISTOR >	
JR7	1-216-295-91	SHORT 0	
JR101	1-216-295-91	SHORT 0	
JR201	1-216-295-91	SHORT 0	
JR204	1-216-295-91	SHORT 0	
JR205	1-216-295-91	SHORT 0	
JR206	1-216-295-91	SHORT 0	
JR207	1-216-295-91	SHORT 0	
JR391	1-216-295-91	SHORT 0	
JR401	1-216-295-91	SHORT 0	
R1	1-216-049-91	RES,CHIP 1K 5% 1/10W	
R2	1-216-025-91	RES,CHIP 100 5% 1/10W	
R3	1-216-025-91	RES,CHIP 100 5% 1/10W	
R4	1-216-013-00	RES,CHIP 33 5% 1/10W	
R5	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R7	1-216-041-00	RES,CHIP 470 5% 1/10W	
R9	1-216-041-00	RES,CHIP 470 5% 1/10W	
R19	1-216-025-91	RES,CHIP 100 5% 1/10W	
R20	1-216-025-91	RES,CHIP 100 5% 1/10W	
R21	1-216-025-91	RES,CHIP 100 5% 1/10W	
R22	1-216-025-91	RES,CHIP 100 5% 1/10W	

REF. NO.	PART.NO	DESCRIPTION	REMARK
R24	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R25	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R26	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R28	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R29	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R30	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R31	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R32	1-216-025-91	RES,CHIP 100 5% 1/10W	
R33	1-216-025-91	RES,CHIP 100 5% 1/10W	
R34	1-216-025-91	RES,CHIP 100 5% 1/10W	
R35	1-216-025-91	RES,CHIP 100 5% 1/10W	
R39	1-216-073-00	RES,CHIP 10K 5% 1/10W	
R46	1-216-095-00	RES,CHIP 82K 5% 1/10W	
R48	1-216-121-91	RES,CHIP 1M 5% 1/10W	
R49	1-216-025-91	RES,CHIP 100 5% 1/10W	
R50	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R51	1-216-057-00	RES,CHIP 2.2K 5% 1/10W	
R54	1-216-025-91	RES,CHIP 100 5% 1/10W	
R58	1-216-057-00	RES,CHIP 2.2K 5% 1/10W	
R59	1-216-025-91	RES,CHIP 100 5% 1/10W	
R60	1-216-025-91	RES,CHIP 100 5% 1/10W	
R61	1-216-025-91	RES,CHIP 100 5% 1/10W	
R62	1-216-025-91	RES,CHIP 100 5% 1/10W	
R63	1-216-025-91	RES,CHIP 100 5% 1/10W	
R64	1-216-025-91	RES,CHIP 100 5% 1/10W	
R65	1-216-025-91	RES,CHIP 100 5% 1/10W	
R66	1-216-057-00	RES,CHIP 2.2K 5% 1/10W	
R67	1-216-057-00	RES,CHIP 2.2K 5% 1/10W	
R68	1-216-049-91	RES,CHIP 1K 5% 1/10W	
R69	1-216-049-91	RES,CHIP 1K 5% 1/10W	
R70	1-216-025-91	RES,CHIP 100 5% 1/10W	
R71	1-216-025-91	RES,CHIP 100 5% 1/10W	
R72	1-216-025-91	RES,CHIP 100 5% 1/10W	
R73	1-216-025-91	RES,CHIP 100 5% 1/10W	
R74	1-216-025-91	RES,CHIP 100 5% 1/10W	
R75	1-216-025-91	RES,CHIP 100 5% 1/10W	
R76	1-216-025-91	RES,CHIP 100 5% 1/10W	
R77	1-216-025-91	RES,CHIP 100 5% 1/10W	
R78	1-414-233-22	INDUCTOR CHIP 0UH	
R79	1-216-033-00	RES,CHIP 220 5% 1/10W	
R80	1-216-049-91	RES,CHIP 1K 5% 1/10W	
R81	1-216-081-00	RES,CHIP 22K 5% 1/10W	
R82	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R83	1-216-073-00	RES,CHIP 10K 5% 1/10W	
R84	1-216-081-00	RES,CHIP 22K 5% 1/10W	
R85	1-216-073-00	RES,CHIP 10K 5% 1/10W	
R86	1-216-081-00	RES,CHIP 22K 5% 1/10W	
R87	1-216-081-00	RES,CHIP 22K 5% 1/10W	
R88	1-216-025-91	RES,CHIP 100 5% 1/10W	
R89	1-216-025-91	RES,CHIP 100 5% 1/10W	
R91	1-216-025-91	RES,CHIP 100 5% 1/10W	

REF. NO.	PART.NO	DESCRIPTION			REMARK
R92	1-216-025-91	RES,CHIP	100	5%	1/10W
R93	1-216-033-00	RES,CHIP	220	5%	1/10W
R94	1-216-033-00	RES,CHIP	220	5%	1/10W
R95	1-216-033-00	RES,CHIP	220	5%	1/10W
R99	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R101	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R102	1-216-025-91	RES,CHIP	100	5%	1/10W
R103	1-216-025-91	RES,CHIP	100	5%	1/10W
R104	1-216-073-00	RES,CHIP	10K	5%	1/10W
R105	1-216-113-00	RES,CHIP	470K	5%	1/10W
R106	1-216-073-00	RES,CHIP	10K	5%	1/10W
R110	1-216-073-00	RES,CHIP	10K	5%	1/10W
R111	1-216-029-00	RES,CHIP	150	5%	1/10W
R112	1-216-029-00	RES,CHIP	150	5%	1/10W
R113	1-216-001-00	RES,CHIP	10	5%	1/10W
R114	1-216-029-00	RES,CHIP	150	5%	1/10W
R115	1-216-033-00	RES,CHIP	220	5%	1/10W
R116	1-216-025-91	RES,CHIP	100	5%	1/10W
R117	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R118	1-216-097-91	RES,CHIP	100K	5%	1/10W
R120	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R121	1-216-073-00	RES,CHIP	10K	5%	1/10W
R122	1-216-041-00	RES,CHIP	470	5%	1/10W
R123	1-216-031-00	RES,CHIP	180	5%	1/10W
R124	1-216-049-91	RES,CHIP	1K	5%	1/10W
R125	1-216-081-00	RES,CHIP	22K	5%	1/10W
R126	1-216-025-91	RES,CHIP	100	5%	1/10W
R127	1-216-081-00	RES,CHIP	22K	5%	1/10W
R128	1-216-035-00	RES,CHIP	270	5%	1/10W
R129	1-216-033-00	RES,CHIP	220	5%	1/10W
R130	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R131	1-216-073-00	RES,CHIP	10K	5%	1/10W
R132	1-216-025-91	RES,CHIP	100	5%	1/10W
R133	1-216-041-00	RES,CHIP	470	5%	1/10W
R134	1-216-001-00	RES,CHIP	10	5%	1/10W
R135	1-216-037-00	RES,CHIP	330	5%	1/10W
R136	1-216-033-00	RES,CHIP	220	5%	1/10W
R137	1-216-049-91	RES,CHIP	1K	5%	1/10W
R138	1-216-041-00	RES,CHIP	470	5%	1/10W
R144	1-216-081-00	RES,CHIP	22K	5%	1/10W
R145	1-216-049-91	RES,CHIP	1K	5%	1/10W
R146	1-216-049-91	RES,CHIP	1K	5%	1/10W
R147	1-216-033-00	RES,CHIP	220	5%	1/10W
R148	1-216-051-00	RES,CHIP	1.2K	5%	1/10W
R149	1-216-049-91	RES,CHIP	1K	5%	1/10W
R150	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R151	1-216-025-91	RES,CHIP	100	5%	1/10W
R153	1-216-295-91	SHORT	0		
R200	1-216-049-91	RES,CHIP	1K	5%	1/10W
R203	1-216-025-91	RES,CHIP	100	5%	1/10W
R204	1-216-025-91	RES,CHIP	100	5%	1/10W
R205	1-216-081-00	RES,CHIP	22K	5%	1/10W
R206	1-216-033-00	RES,CHIP	220	5%	1/10W
R208	1-216-041-00	RES,CHIP	470	5%	1/10W
R209	1-216-182-00	RES,CHIP	220	5%	1/8W
R210	1-216-017-91	RES,CHIP	47	5%	1/10W
R211	1-216-033-00	RES,CHIP	220	5%	1/10W
R212	1-216-022-00	RES,CHIP	75	5%	1/10W
R213	1-216-022-00	RES,CHIP	75	5%	1/10W
R214	1-216-025-91	RES,CHIP	100	5%	1/10W
R216	1-216-025-91	RES,CHIP	100	5%	1/10W
R217	1-216-113-00	RES,CHIP	470K	5%	1/10W
R218	1-216-025-91	RES,CHIP	100	5%	1/10W
R219	1-216-113-00	RES,CHIP	470K	5%	1/10W
R220	1-216-295-91	SHORT	0		
R221	1-216-041-00	RES,CHIP	470	5%	1/10W
R222	1-216-089-91	RES,CHIP	47K	5%	1/10W
R223	1-216-295-91	SHORT	0		
R224	1-216-041-00	RES,CHIP	470	5%	1/10W
R225	1-216-089-91	RES,CHIP	47K	5%	1/10W
R226	1-216-033-00	RES,CHIP	220	5%	1/10W
R227	1-216-022-00	RES,CHIP	75	5%	1/10W
R228	1-216-022-00	RES,CHIP	75	5%	1/10W
R229	1-216-033-00	RES,CHIP	220	5%	1/10W
R230	1-216-022-00	RES,CHIP	75	5%	1/10W
R232	1-216-025-91	RES,CHIP	100	5%	1/10W
R233	1-216-025-91	RES,CHIP	100	5%	1/10W
R234	1-216-113-00	RES,CHIP	470K	5%	1/10W
R235	1-216-025-91	RES,CHIP	100	5%	1/10W
R236	1-216-113-00	RES,CHIP	470K	5%	1/10W
R237	1-216-295-91	SHORT	0		
R238	1-216-089-91	RES,CHIP	47K	5%	1/10W
R239	1-216-041-00	RES,CHIP	470	5%	1/10W
R240	1-216-295-91	SHORT	0		
R241	1-216-089-91	RES,CHIP	47K	5%	1/10W
R242	1-216-041-00	RES,CHIP	470	5%	1/10W
R243	1-216-033-00	RES,CHIP	220	5%	1/10W
R244	1-216-033-00	RES,CHIP	220	5%	1/10W
R249	1-216-001-00	RES,CHIP	10	5%	1/10W
R255	1-216-025-91	RES,CHIP	100	5%	1/10W
R256	1-216-025-91	RES,CHIP	100	5%	1/10W
R257	1-216-017-91	RES,CHIP	47	5%	1/10W
R258	1-216-049-91	RES,CHIP	1K	5%	1/10W
R259	1-216-033-00	RES,CHIP	220	5%	1/10W
R260	1-216-033-00	RES,CHIP	220	5%	1/10W
R261	1-216-022-00	RES,CHIP	75	5%	1/10W
R265	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R266	1-216-295-91	SHORT	0		
R267	1-216-295-91	SHORT	0		
R270	1-216-022-00	RES,CHIP	75	5%	1/10W
R271	1-216-022-00	RES,CHIP	75	5%	1/10W
R272	1-216-022-00	RES,CHIP	75	5%	1/10W

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REF. NO.	PART.NO	DESCRIPTION			REMARK
R273	1-216-022-00	RES,CHIP	75	5%	1/10W
R274	1-216-295-91	SHORT	0		
R275	1-216-295-91	SHORT	0		
R276	1-216-295-91	SHORT	0		
R277	1-216-295-91	SHORT	0		
R280	1-216-049-91	RES,CHIP	1K	5%	1/10W
R281	1-216-081-91	RES,CHIP	22K	5%	1/10W
R282	1-216-089-91	RES,CHIP	47K	5%	1/10W
R283	1-216-049-91	RES,CHIP	1K	5%	1/10W
R284	1-216-081-91	RES,CHIP	22K	5%	1/10W
R285	1-216-089-91	RES,CHIP	47K	5%	1/10W
R286	1-216-049-91	RES,CHIP	1K	5%	1/10W
R287	1-216-025-91	RES,CHIP	100	5%	1/10W
R291	1-216-049-91	RES,CHIP	1K	5%	1/10W
R292	1-216-049-91	RES,CHIP	1K	5%	1/10W
R293	1-216-049-91	RES,CHIP	1K	5%	1/10W
R294	1-216-049-91	RES,CHIP	1K	5%	1/10W
R295	1-216-049-91	RES,CHIP	1K	5%	1/10W
R296	1-216-049-91	RES,CHIP	1K	5%	1/10W
R297	1-216-022-00	RES,CHIP	75	5%	1/10W
R300	1-216-025-91	RES,CHIP	100	5%	1/10W
R301	1-216-033-00	RES,CHIP	220	5%	1/10W
R302	1-216-295-91	SHORT	0		
R303	1-216-295-91	SHORT	0		
R308	1-216-025-91	RES,CHIP	100	5%	1/10W
R309	1-216-033-00	RES,CHIP	220	5%	1/10W
R310	1-216-033-00	RES,CHIP	220	5%	1/10W
R311	1-216-295-91	SHORT	0		
R312	1-216-295-91	SHORT	0		
R314	1-216-295-91	SHORT	0		
R315	1-216-295-91	SHORT	0		
R316	1-216-033-00	RES,CHIP	220	5%	1/10W
R318	1-216-089-91	RES,CHIP	47K	5%	1/10W
R319	1-216-081-00	RES,CHIP	22K	5%	1/10W
R320	1-216-025-91	RES,CHIP	100	5%	1/10W
R321	1-216-025-91	RES,CHIP	100	5%	1/10W
R322	1-216-025-91	RES,CHIP	100	5%	1/10W
R323	1-216-033-00	RES,CHIP	220	5%	1/10W
R324	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R326	1-216-025-91	RES,CHIP	100	5%	1/10W
R327	1-216-025-91	RES,CHIP	100	5%	1/10W
R328	1-216-129-00	RES,CHIP	2.2M	5%	1/10W
R329	1-216-083-00	RES,CHIP	27K	5%	1/10W
R330	1-216-025-91	RES,CHIP	100	5%	1/10W
R331	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R332	1-216-025-91	RES,CHIP	100	5%	1/10W
R333	1-216-075-00	RES,CHIP	12K	5%	1/10W
R334	1-216-041-00	RES,CHIP	470	5%	1/10W
R335	1-216-675-11	METAL CHIP	10K	0.50%	1/10W
R336	1-216-109-00	RES,CHIP	330K	5%	1/10W
R337	1-216-025-91	RES,CHIP	100	5%	1/10W
R338	1-216-051-00	RES,CHIP	1.2K	5%	1/10W
R339	1-216-049-91	RES,CHIP	1K	5%	1/10W
R340	1-216-025-91	RES,CHIP	100	5%	1/10W
R341	1-216-025-91	RES,CHIP	100	5%	1/10W
R342	1-216-049-91	RES,CHIP	1K	5%	1/10W
R343	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R344	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R345	1-216-025-91	RES,CHIP	100	5%	1/10W
R346	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R347	1-216-025-91	RES,CHIP	100	5%	1/10W
R348	1-216-025-91	RES,CHIP	100	5%	1/10W
R349	1-216-025-91	RES,CHIP	100	5%	1/10W
R350	1-216-042-00	RES,CHIP	510	5%	1/10W
R351	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R352	1-216-077-00	RES,CHIP	15K	5%	1/10W
R353	1-216-033-00	RES,CHIP	220	5%	1/10W
R354	1-216-295-91	SHORT	0		
R357	1-216-049-91	RES,CHIP	1K	5%	1/10W
R358	1-216-295-91	SHORT	0		
R359	1-216-097-91	RES,CHIP	100K	5%	1/10W
R360	1-216-049-91	RES,CHIP	1K	5%	1/10W
R362	1-216-049-91	RES,CHIP	1K	5%	1/10W
R364	1-216-049-91	RES,CHIP	1K	5%	1/10W
R370	1-216-295-91	SHORT	0		
R401	1-216-033-00	RES,CHIP	220	5%	1/10W
R402	1-216-049-91	RES,CHIP	1K	5%	1/10W
R403	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R404	1-216-083-00	RES,CHIP	27K	5%	1/10W
R405	1-216-073-00	RES,CHIP	10K	5%	1/10W
R406	1-216-073-00	RES,CHIP	10K	5%	1/10W
R407	1-216-073-00	RES,CHIP	10K	5%	1/10W
R408	1-216-049-91	RES,CHIP	1K	5%	1/10W
R409	1-216-049-91	RES,CHIP	1K	5%	1/10W
R410	1-216-049-91	RES,CHIP	1K	5%	1/10W
R411	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R1001	1-216-025-91	RES,CHIP	100	5%	1/10W
R1002	1-216-025-91	RES,CHIP	100	5%	1/10W
R1005	1-216-041-00	RES,CHIP	470	5%	1/10W
R1006	1-216-049-91	RES,CHIP	1K	5%	1/10W
R1007	1-216-073-91	RES,CHIP	10K	5%	1/10W
R1010	1-216-295-91	SHORT	0		
R1012	1-216-041-00	RES,CHIP	470	5%	1/10W
R1014	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R1015	1-216-041-91	RES,CHIP	470	5%	1/10W
R1016	1-216-073-91	RES,CHIP	10K	5%	1/10W
R1017	1-216-295-91	SHORT	0		
R1021	1-216-025-91	RES,CHIP	100	5%	1/10W
R1022	1-216-025-91	RES,CHIP	100	5%	1/10W
R1023	1-216-025-91	RES,CHIP	100	5%	1/10W
R1024	1-216-041-00	RES,CHIP	470	5%	1/10W
R1026	1-216-025-91	RES,CHIP	100	5%	1/10W

The components identified by shading and marked ⚠ are critical for safety
Replace only with the part number specified.

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REF. NO.	PART.NO	DESCRIPTION				REMARK
R1027	1-216-025-91	RES,CHIP	100	5%	1/10W	
R1028	1-216-025-91	RES,CHIP	100	5%	1/10W	
		< TUNER >				
TU101	1-693-338-11	TUNER/VIF (AEP) (KV-28FX20A/28FX20D/28FX20E)				
	1-693-340-11	TUNER/VIF (FR) (KV-28FX20B)				
	1-693-339-11	TUNER/VIF (UK) (KV-28FX20U)				
		< CRYSTAL >				
X1	1-767-154-21	VIBRATOR, CERAMIC				
X201	1-760-628-11	VIBRATOR, CRYSTAL				
X301	1-567-504-11	OSCILLATOR, CRYSTAL				
X302	1-567-505-11	OSCILLATOR, CRYSTAL				
X303	1-767-127-11	VIBRATOR, CERAMIC				
X1001	1-579-965-21	VIBRATOR, CRYSTAL				
**********						
	*A-1638-126-A	C BOARD, COMPLETE				
		**********				
		< CAPACITOR >				
C702	1-128-551-11	ELECT	22MF	20%	25V	
C703	1-104-664-11	ELECT	47MF	20%	10V	
C704	1-102-945-00	CERAMIC	8PF	0.5PF	50V	
C705	1-102-945-00	CERAMIC	8PF	0.5PF	50V	
C706	1-102-953-00	CERAMIC	18PF	5%	50V	
C707	1-107-651-11	ELECT	4.7MF	20%	250V	
C708	1-126-960-11	ELECT	1MF	20%	50V	
C709	1-101-006-00	CERAMIC	0.047MF		50V	
C710	1-107-651-11	ELECT	4.7MF	20%	250V	
C711	1-107-651-11	ELECT	4.7MF	20%	250V	
C712	1-101-006-00	CERAMIC	0.047MF		50V	
C714	1-101-006-00	CERAMIC	0.047MF		50V	
C715	1-101-006-00	CERAMIC	0.047MF		50V	
C716	1-102-157-00	CERAMIC	560PF	10%	500V	
C717	1-102-157-00	CERAMIC	560PF	10%	500V	
C718	1-102-157-00	CERAMIC	560PF	10%	500V	
C719	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C725	1-107-651-11	ELECT	4.7MF	20%	250V	
C731	1-117-214-11	CERAMIC	0.001MF	10%	2KV	
		< CONNECTOR >				
CN701	*1-568-882-51	PIN, CONNECTOR 7P				
CN703	1-778-037-11	PIN, CONNECTOR 6P				
CN705	1-695-915-11	TAB (CONTACT)				
CN706	1-695-915-11	TAB (CONTACT)				
CN708	1-695-915-11	TAB (CONTACT)				
		< DIODE >				
D701	8-719-109-85	DIODE RD5.1ESB2				
D704	8-719-991-33	DIODE 1SS133T-77				
D705	8-719-991-33	DIODE 1SS133T-77				
D707	8-719-991-33	DIODE 1SS133T-77				
D709	8-719-051-85	DIODE HSS83TD				
D710	8-719-051-85	DIODE HSS83TD				
D711	8-719-051-85	DIODE HSS83TD				
D712	8-719-908-03	DIODE GP08D				
D713	8-719-109-72	DIODE RD3.9ESB2				
D714	8-719-991-33	DIODE 1SS133T-77				
		< IC >				
IC701	8-759-346-42	IC TDA6101Q/N3				
IC702	8-759-346-42	IC TDA6101Q/N3				
IC703	8-759-346-42	IC TDA6101Q/N3				
		< CRT SOCKET >				
J701	⚠ 1-526-990-21	SOCKET, CRT				
		< COIL >				
L701	1-410-667-31	INDUCTOR	22UH			
		< TRANSISTOR >				
Q701	8-729-119-76	TRANSISTOR 2SA1175-HFE				
		< RESISTOR >				
R701	1-247-807-31	CARBON	100	5%	1/4W	
R702	1-249-417-11	CARBON	1K	5%	1/4W	
R703	1-249-437-11	CARBON	47K	5%	1/4W	
R704	1-215-413-00	METAL	470	1%	1/4W	
R705	1-249-441-11	CARBON	100K	5%	1/4W	
R706	1-535-465-11	LEAD, JUMPER (5.0MM)				
R707	1-215-424-00	METAL	1.3K	1%	1/4W	
R708	1-215-424-00	METAL	1.3K	1%	1/4W	
R709	1-215-424-00	METAL	1.3K	1%	1/4W	
R710	1-215-413-00	METAL	470	1%	1/4W	
R711	1-249-421-11	CARBON	2.2K	5%	1/4W	
R712	1-249-431-11	CARBON	15K	5%	1/4W	
R718	1-249-422-11	CARBON	2.7K	5%	1/4W	
R719	1-249-422-11	CARBON	2.7K	5%	1/4W	
R720	1-249-422-11	CARBON	2.7K	5%	1/4W	
R722	1-249-435-11	CARBON	33K	5%	1/4W	
R725	1-215-903-11	METAL OXIDE	68K	5%	2W	F
R727	1-215-903-11	METAL OXIDE	68K	5%	2W	F
R729	1-215-903-11	METAL OXIDE	68K	5%	2W	F
R731	1-202-818-00	SOLID	1K	20%	1/2W	
R732	1-202-818-00	SOLID	1K	20%	1/2W	
R733	1-202-818-00	SOLID	1K	20%	1/2W	
R734	1-247-739-11	CARBON	100	5%	1/2W	
R738	1-249-489-11	CARBON	22K	5%	1/2W	
R740	1-216-391-11	METAL OXIDE	1.5	5%	3W	F
R742	1-215-912-11	METAL OXIDE	150	5%	3W	F

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REF. NO.	PART.NO	DESCRIPTION	REMARK
R743	1-202-847-00	SOLID 560K 20% 1/2W	
		< VARIABLE RESISTOR >	
RV701	1-241-656-21	RES, ADJ, METAL FILM 110M	
		< SPARK GAP >	
SG701	1-517-712-31	GAP, SPARK	
SG702	1-517-712-31	GAP, SPARK	
SG703	1-517-712-31	GAP, SPARK	
SG704	1-519-421-11	GAP, DISCHARGE	
**********			
*A-1640-350-A		D1 BOARD, COMPLETE	
		**********	
4-382-854-11		SCREW (M3X10), P, SW (+)	
*4-931-401-01		HEAT SINK, V.OUT	
		< CAPACITOR >	
C2201	1-102-121-00	CERAMIC 0.0022MF 10% 50V	
C2202	1-102-121-00	CERAMIC 0.0022MF 10% 50V	
C2203	1-126-964-11	ELECT 10MF 20% 50V	
C2204	1-126-964-11	ELECT 10MF 20% 50V	
C2208	1-137-194-81	FILM 0.47MF 5% 50V	
C2209	1-136-177-00	FILM 1MF 5% 50V	
C2210	1-136-177-00	FILM 1MF 5% 50V	
C2211	1-137-194-81	FILM 0.47MF 5% 63V	
C2212	1-102-074-00	CERAMIC 0.001MF 10% 50V	
C2213	1-136-202-11	FILM 0.33MF 5% 63V	
C2214	1-102-114-00	CERAMIC 470PF 10% 50V	
C2215	1-130-777-00	FILM 0.1MF 5% 63V	
C2216	1-102-125-00	CERAMIC 0.0047MF 10% 50V	
C2217	1-102-106-00	CERAMIC 100PF 10% 50V	
C2218	1-130-777-00	FILM 0.1MF 5% 63V	
C2219	1-126-963-91	ELECT 4.7MF 20% 50V	
C2220	1-130-777-00	FILM 0.1MF 5% 63V	
C2221	1-130-777-00	FILM 0.1MF 5% 63V	
C2222	1-130-777-00	FILM 0.1MF 5% 63V	
C2223	1-126-943-11	ELECT 2200MF 20% 25V	
C2224	1-126-943-11	ELECT 2200MF 20% 25V	
C2501	1-104-665-11	ELECT 100MF 20% 25V	
C2502	1-126-933-11	ELECT 100MF 20% 16V	
C2503	1-102-228-00	CERAMIC 470PF 10% 500V	
C2504	1-126-941-11	ELECT 470MF 20% 25V	
C2801	1-102-244-00	CERAMIC 220PF 10% 500V	
C2805	1-102-973-00	CERAMIC 100PF 5% 50V	
C2806	1-136-347-11	FILM 0.0047MF 5% 630V	
C2808	1-130-491-00	MYLAR 0.047MF 5% 50V	
C2809	1-130-483-00	MYLAR 0.01MF 5% 50V	
C2811	1-129-716-00	FILM 0.015MF 5% 630V	
C2813	1-102-228-00	CERAMIC 470PF 10% 500V	

REF. NO.	PART.NO	DESCRIPTION	REMARK
C2814	1-129-992-00	FILM 0.0024MF 5% 630V	
C2815	1-117-455-11	FILM 22000PF 5% 630V	
C2817	1-126-933-11	ELECT 100MF 20% 16V	
C2818	1-104-665-11	ELECT 100MF 20% 25V	
C2819	1-126-933-11	ELECT 100MF 20% 16V	
C2820	1-129-725-00	FILM 0.082MF 5% 400V	
C2840	1-102-228-00	CERAMIC 470PF 10% 500V	
C2841	1-102-030-00	CERAMIC 330PF 10% 500V	
C2842	1-109-954-11	ELECT 0.47MF 20% 160V	
C2845	1-136-684-51	FILM 0.0022MF 5% 50V	
C2846	1-130-491-00	MYLAR 0.047MF 5% 50V	
C2847	1-126-964-11	ELECT 10MF 20% 50V	
C2848	1-136-159-00	FILM 0.033MF 5% 50V	
C2849	1-126-964-11	ELECT 10MF 20% 50V	
C2850	1-130-483-00	MYLAR 0.01MF 5% 50V	
C2851	1-136-169-00	FILM 0.22MF 5% 50V	
C2852	1-136-169-00	FILM 0.22MF 5% 50V	
C3802	1-126-965-11	ELECT 22MF 20% 50V	
C3804	1-126-965-11	ELECT 22MF 20% 50V	
		< CONNECTOR >	
CN2201	*1-508-784-00	PIN, CONNECTOR (5MM PITCH) 1P	
CN2202	*1-564-511-11	PLUG, CONNECTOR 8P	
CN2203	*1-564-506-11	PLUG, CONNECTOR 3P	
CN2503	*1-564-506-11	PLUG, CONNECTOR 3P	
CN2804	*1-568-879-11	PIN, CONNECTOR 4P	
CN2805	1-568-878-51	PIN, CONNECTOR 3P	
CN2806	1-695-915-11	TAB (CONTACT)	
CN2807	*1-568-881-51	PIN, CONNECTOR 6P	
CN3801	*1-568-879-11	PIN, CONNECTOR 4P	
CN3802	*1-785-270-12	PIN, DY CONNECTOR (PC BOARD)	
CN3803	*1-580-798-11	CONNECTOR PIN (DY) 6P	
		< DIODE >	
D2201	8-719-109-85	DIODE RD5.1ESB2	
D2501	8-719-302-43	DIODE EL1Z	
D2502	8-719-979-85	DIODE EGP20G	
D2801	8-719-110-41	DIODE RD15ESB2	
D2802	8-719-991-33	DIODE 1SS133T-77	
D2804	8-719-302-43	DIODE EL1Z	
D2805	8-719-970-87	DIODE ERA38-06	
D2806	8-719-300-33	DIODE RU-3AM	
D2807	8-719-302-43	DIODE EL1Z	
D2808	8-719-970-87	DIODE ERA38-06	
D2810	8-719-991-33	DIODE 1SS133T-77	
D2811	8-719-991-33	DIODE 1SS133T-77	
D2812	8-719-991-33	DIODE 1SS133T-77	
D2813	8-719-991-33	DIODE 1SS133T-77	
D3801	8-719-991-33	DIODE 1SS133T-77	
D3802	8-719-991-33	DIODE 1SS133T-77	

REF. NO.	PART.NO	DESCRIPTION	REMARK
		< IC >	
IC2201	8-759-553-45	IC TDA7481	
IC2501	8-759-231-58	IC TA7812S	
IC2801	8-759-103-93	IC UPC393C	
IC2802	8-759-701-59	IC NJM78M09FA	
IC2803	8-759-700-42	IC NJM2904D	
		< COIL >	
L2201	1-535-465-11	LEAD, JUMPER (5.0MM)	
L2202	1-416-953-11	INDUCTOR 0UH	
L2203	1-412-529-11	INDUCTOR 22UH	
L2501	1-406-665-11	INDUCTOR 100UH	
L2502	1-412-519-11	INDUCTOR 3.3UH	
L2801	1-535-465-11	LEAD, JUMPER (5.0MM)	
L2802	1-406-677-11	INDUCTOR 10MMH	
L2803	1-406-989-21	INDUCTOR 10MMH	
L2805	1-406-667-11	INDUCTOR 220UH	
L2806	1-406-679-11	INDUCTOR 22MMH	
		< TRANSISTOR >	
Q2201	8-729-030-02	TRANSISTOR DTC144ESA	
Q2202	8-729-029-66	TRANSISTOR DTC114ESA	
Q2203	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q2802	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q2805	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q2806	8-729-039-68	TRANSISTOR IRF620	
Q2808	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q2810	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q2811	8-729-140-97	TRANSISTOR 2SB734-34	
Q2814	8-729-043-95	TRANSISTOR 2SC3840(3)	
Q3801	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q3802	8-729-119-78	TRANSISTOR 2SC2785-HFE	
		< RESISTOR >	
R2201	1-535-465-11	LEAD, JUMPER (5.0MM)	
R2202	1-535-465-11	LEAD, JUMPER (5.0MM)	
R2203	1-101-006-00	CERAMIC 0.047MF 50V	
R2204	1-249-429-11	CARBON 10K 5% 1/4W	
R2205	1-247-843-11	CARBON 3.3K 5% 1/4W	
R2206	1-247-843-11	CARBON 3.3K 5% 1/4W	
R2207	1-249-429-11	CARBON 10K 5% 1/4W	
R2209	1-247-897-11	CARBON 560K 5% 1/4W	
R2210	1-247-831-91	CARBON 1K 5% 1/4W	
R2211	1-249-435-11	CARBON 33K 5% 1/4W	
R2212	1-249-405-11	CARBON 100 5% 1/4W F	
R2213	1-249-430-11	CARBON 12K 5% 1/4W	
R2214	1-247-841-91	CARBON 2.7K 5% 1/4W	
R2215	1-247-815-91	CARBON 220 5% 1/4W	
R2216	1-247-865-91	CARBON 27K 5% 1/2W	
R2501	1-249-443-11	CARBON 0.47 5% 1/4W F	
R2801	1-535-465-11	LEAD, JUMPER (5.0MM)	

REF. NO.	PART.NO	DESCRIPTION	REMARK
R2802	1-215-919-11	METAL OXIDE 2.2K 5% 3W F	
R2804	1-249-437-11	CARBON 47K 5% 1/4W	
R2805	1-249-429-11	CARBON 10K 5% 1/4W	
R2811	1-215-445-00	METAL 10K 1% 1/4W	
R2813	1-215-469-00	METAL 100K 1% 1/4W	
R2814	1-215-445-00	METAL 10K 1% 1/4W	
R2815	1-215-469-00	METAL 100K 1% 1/4W	
R2816	1-215-443-00	METAL 8.2K 1% 1/4W	
R2817	1-215-463-00	METAL 56K 1% 1/4W	
R2818	1-215-459-00	METAL 39K 1% 1/4W	
R2819	1-249-421-11	CARBON 2.2K 5% 1/4W	
R2820	1-249-421-11	CARBON 2.2K 5% 1/4W	
R2821	1-247-807-31	CARBON 100 5% 1/4W	
R2823	1-535-465-11	LEAD, JUMPER (5.0MM)	
R2824	1-249-425-11	CARBON 4.7K 5% 1/4W	
R2825	1-249-417-11	CARBON 1K 5% 1/4W	
R2826	1-249-417-11	CARBON 1K 5% 1/4W	
R2827	1-249-441-11	CARBON 100K 5% 1/4W	
R2828	1-249-441-11	CARBON 100K 5% 1/4W	
R2829	1-249-441-11	CARBON 100K 5% 1/4W	
R2830	1-215-912-11	METAL OXIDE 150 5% 3W F	
R2831	1-215-912-11	METAL OXIDE 150 5% 3W F	
R2832	1-249-379-11	CARBON 0.68 5% 1/4W F	
R2840	1-215-922-11	METAL OXIDE 6.8K 5% 3W F	
R2841	1-215-922-11	METAL OXIDE 6.8K 5% 3W F	
R2842	1-215-923-00	METAL OXIDE 10K 5% 3W F	
R2843	1-215-923-00	METAL OXIDE 10K 5% 3W F	
R2844	1-249-409-11	CARBON 220 5% 1/4W F	
R2845	1-215-489-00	METAL 680K 1% 1/4W	
R2846	1-247-903-00	CARBON 1M 5% 1/4W	
R2847	1-249-429-11	CARBON 10K 5% 1/4W	
R2848	1-215-449-00	METAL 15K 1% 1/4W	
R2849	1-215-491-00	METAL 820K 1% 1/4W	
R2850	1-215-445-00	METAL 10K 1% 1/4W	
R2851	1-215-445-00	METAL 10K 1% 1/4W	
R2852	1-215-481-00	METAL 330K 1% 1/4W	
R2853	1-215-477-00	METAL 220K 1% 1/4W	
R2854	1-215-457-00	METAL 33K 1% 1/4W	
R2855	1-215-457-00	METAL 33K 1% 1/4W	
R2856	1-247-807-31	CARBON 100 5% 1/4W	
R2857	1-249-413-11	CARBON 470 5% 1/4W	
R2858	1-249-424-11	CARBON 3.9K 5% 1/4W	
R2859	1-247-807-31	CARBON 100 5% 1/4W	
R2860	1-215-886-11	METAL OXIDE 100 5% 2W F	
R2861	1-215-886-11	METAL OXIDE 100 5% 2W F	
R3801	1-249-421-11	CARBON 2.2K 5% 1/4W	
R3804	1-249-421-11	CARBON 2.2K 5% 1/4W	
		< RELAY >	
RY3801	1-755-172-11	RELAY	
RY3802	1-755-172-11	RELAY	

D1 **D**

The components identified by shading and marked ⚠ are critical for safety
Replace only with the part number specified.

REF. NO.		PART.NO	DESCRIPTION			REMARK
			< TRANSFORMER >			
T2801		1-433-849-11	TRANSFORMER, FERRITE (DFT)			
T3801		1-419-090-11	COIL, CHOKE (100UH)			
T3802		1-419-090-11	COIL, CHOKE (100UH)			
**********						
		*A-1642-253-A	D BOARD, COMPLETE			
			**********			
		1-923-180-25	WIRE UL1007 AWG24 190MM VIO			
		4-201-023-01	SPACER, INSULATING			
		4-202-373-01	SPRING, IC			
		4-202-710-01	SPACER, INSULATING			
		4-382-854-11	SCREW (M3X10), P, SW (+)			
			< CAPACITOR >			
C502		1-102-824-00	CERAMIC	470PF	5%	50V
C503		1-136-165-00	FILM	0.1MF	5%	50V
C504		1-102-119-00	CERAMIC	0.0015MF	10%	50V
C506		1-126-941-11	ELECT	470MF	20%	25V
C507		1-109-953-11	ELECT	2.2MF	20%	50V
C509		1-136-165-00	FILM	0.1MF	5%	50V
C510		1-126-969-11	ELECT	220MF	20%	50V
C511		1-136-202-11	FILM	0.33MF	5%	63V
C513		1-106-220-00	MYLAR	0.1MF	10%	100V
C514		1-136-165-00	FILM	0.1MF	5%	50V
C515		1-126-941-11	ELECT	470MF	20%	25V
C517		1-126-941-11	ELECT	470MF	20%	25V
C518		1-102-228-00	CERAMIC	470PF	10%	500V
C519		1-102-228-00	CERAMIC	470PF	10%	500V
C520		1-126-941-11	ELECT	470MF	20%	25V
C521		1-107-698-11	ELECT	10MF	20%	25V
C522		1-126-964-11	ELECT	10MF	20%	50V
C523		1-136-165-00	FILM	0.1MF	5%	50V
C600	⚠	1-119-888-51	CERAMIC	2200PF	20%	250V
C601	⚠	1-161-964-91	CERAMIC	0.0047MF		250V
C602	⚠	1-161-964-91	CERAMIC	0.0047MF		250V
C603		1-117-752-11	ELECT(BLOCK)	330MF	20%	450V
C604		1-126-968-11	ELECT	100MF	20%	50V
C605		1-107-929-11	ELECT	10MF	20%	100V
C606		1-162-318-11	CERAMIC	0.001MF	10%	500V
C607		1-104-666-11	ELECT	220MF	20%	25V
C608		1-109-880-11	FILM	0.0015MF	3%	2KV
C611		1-102-228-00	CERAMIC	470PF	10%	500V
C612		1-111-160-11	ELECT	22MF	20%	100V
C613		1-124-347-00	ELECT	100MF	20%	160V
C614		1-126-933-11	ELECT	100MF	20%	16V
C615		1-115-789-11	ELECT	0.001F	20%	25V
C616		1-115-789-11	ELECT	0.001F	20%	25V
C618		1-136-165-00	FILM	0.1MF	5%	50V
C619		1-102-228-00	CERAMIC	470PF	10%	500V
C620		1-102-228-00	CERAMIC	470PF	10%	500V
C622		1-107-925-11	ELECT	1MF	20%	100V
C624		1-136-165-00	FILM	0.1MF	5%	50V
C625		1-126-967-11	ELECT	47MF	20%	50V
C626		1-104-666-11	ELECT	220MF	20%	25V
C628		1-126-964-11	ELECT	10MF	20%	50V
C629		1-115-819-11	ELECT	0.0022F	20%	35V
C630		1-115-819-11	ELECT	0.0022F	20%	35V
C631		1-126-965-11	ELECT	22MF	20%	50V
C632		1-104-666-11	ELECT	220MF	20%	25V
C636	⚠	1-119-888-51	CERAMIC	2200PF	20%	250V
C638		1-136-203-11	FILM	0.01MF	10%	250V
C640		1-106-220-00	MYLAR	0.1MF	10%	100V
C641	⚠	1-113-916-11	CERAMIC	0.01MF	20%	250V
C642	⚠	1-113-916-11	CERAMIC	0.01MF	20%	250V
C647		1-162-116-00	CERAMIC	680PF	10%	2KV
C651		1-102-228-00	CERAMIC	470PF	10%	500V
C800		1-137-368-11	FILM	0.0047MF	5%	50V
C801		1-137-368-11	FILM	0.0047MF	5%	50V
C802		1-102-074-00	CERAMIC	0.001MF	10%	50V
C803		1-129-898-00	FILM	0.0022MF	5%	630V
C804		1-136-165-00	FILM	0.1MF	5%	50V
C805		1-136-207-11	FILM	0.047MF	10%	250V
C806		1-107-370-11	FILM	0.1MF	10%	200V
C807		1-136-540-11	FILM	0.82MF	5%	200V
C808		1-136-104-00	FILM	0.16MF	5%	200V
C811		1-162-318-11	CERAMIC	0.001MF	10%	500V
C812		1-136-540-11	FILM	0.82MF	5%	200V
C813		1-129-723-00	FILM	0.056MF	5%	630V
C814		1-136-732-11	FILM	0.021MF	3%	1.4KV
C815		1-137-046-11	FILM	0.0082MF	10%	400V
C816		1-117-214-11	CERAMIC	0.001MF	10%	2KV
C817		1-117-214-11	CERAMIC	0.001MF	10%	2KV
C818		1-162-134-11	CERAMIC	470PF	10%	2KV
C819		1-136-208-11	FILM	0.068MF	10%	250V
C822		1-107-662-11	ELECT	22MF	20%	250V
C824		1-123-024-21	ELECT	33MF		160V
C826		1-161-830-00	CERAMIC	0.0047MF		500V
C829		1-126-959-11	ELECT	0.47MF	20%	50V
C830		1-126-959-11	ELECT	0.47MF	20%	50V
C834		1-128-551-11	ELECT	22MF	20%	25V
C835		1-162-318-11	CERAMIC	0.001MF	10%	500V
C836		1-162-117-00	CERAMIC	100PF	10%	500V
C837		1-102-978-00	CERAMIC	220PF	5%	50V
C838		1-102-228-00	CERAMIC	470PF	10%	500V
C839		1-136-207-11	FILM	0.047MF	10%	250V
C841		1-102-114-00	CERAMIC	470PF	10%	50V
C845		1-101-880-00	CERAMIC	47PF	5%	50V
C910		1-535-465-11	LEAD,JUMPER (5.0MM)			
C916		1-162-318-11	CERAMIC	0.001MF	10%	500V
C1200		1-136-165-00	FILM	0.1MF	5%	50V

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REF. NO.	PART.NO	DESCRIPTION			REMARK
C1201	1-137-194-81	FILM	0.47MF	5%	50V
C1202	1-137-194-81	FILM	0.47MF	5%	50V
C1203	1-136-169-00	FILM	0.22MF	5%	50V
C1204	1-136-169-00	FILM	0.22MF	5%	50V
C1205	1-101-005-00	CERAMIC	0.022MF		50V
C1206	1-101-005-00	CERAMIC	0.022MF		50V
C1207	1-126-933-11	ELECT	100MF	20%	16V
C1208	1-126-963-11	ELECT	4.7MF	20%	50V
C1209	1-126-963-11	ELECT	4.7MF	20%	50V
C1210	1-126-941-11	ELECT	470MF	20%	25V
C1212	1-162-318-11	CERAMIC	0.001MF	10%	500V
C1213	1-162-318-11	CERAMIC	0.001MF	10%	500V
C1214	1-126-933-11	ELECT	100MF	20%	16V
C1215	1-137-194-81	FILM	0.47MF	5%	50V
C1216	1-137-366-11	FILM	0.0022MF	5%	50V
C1217	1-137-366-11	FILM	0.0022MF	5%	50V
C1218	1-126-941-11	ELECT	470MF	20%	25V
C1220	1-162-318-11	CERAMIC	0.001MF	10%	500V
C1221	1-162-318-11	CERAMIC	0.001MF	10%	500V
C1223	1-101-006-00	CERAMIC	0.047MF		50V
		< CONNECTOR >			
CN600	⚠ *1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P			
CN601	⚠ 1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P			
CN602	⚠ *1-691-291-11	PIN, CONNECTOR (PC BOARD) 5P			
CN613	4-352-844-01	PIN, LEAD, COATING			
CN614	1-695-915-11	TAB (CONTACT)			
CN615	1-695-915-11	TAB (CONTACT)			
CN616	4-352-844-01	PIN, LEAD, COATING			
CN800	*1-580-798-11	CONNECTOR PIN (DY) 6P			
CN801	*1-568-879-11	PIN, CONNECTOR 4P			
CN802	1-695-915-11	TAB (CONTACT)			
CN803	1-695-915-11	TAB (CONTACT)			
CN804	1-778-037-11	PIN, CONNECTOR 6P			
CN805	*1-770-747-11	CONNECTOR, BOARD TO BOARD 12P			
CN901	*1-568-882-51	PIN, CONNECTOR 7P			
CN902	1-695-299-11	CONNECTOR, BOARD TO BOARD 50P			
CN903	*1-564-516-11	PLUG, CONNECTOR 13P			
CN904	*1-564-511-11	PLUG, CONNECTOR 8P			
CN1401	*1-568-880-51	PIN, CONNECTOR 5P			
CN1403	*1-564-511-11	PLUG, CONNECTOR 8P			
CN1408	*1-568-879-11	PIN, CONNECTOR 4P			
CN1803	*1-564-508-11	PLUG, CONNECTOR 5P			
		< DIODE >			
D500	8-719-109-85	DIODE RD5.1ESB2			
D502	8-719-979-85	DIODE EGP20G			
D503	8-719-979-85	DIODE EGP20G			
D504	8-719-991-33	DIODE 1SS133T-77			
D505	8-719-982-03	DIODE MTZJ-3.6A			
D506	8-719-991-33	DIODE 1SS133T-77			
D507	8-719-109-85	DIODE RD5.1ESB2			
D510	8-719-924-13	DIODE MTZJ-T-77-22B			
D570	8-719-924-13	DIODE MTZJ-T-77-22B			
D571	8-719-924-13	DIODE MTZJ-T-77-22B			
D600	8-719-510-53	DIODE D4SB60L			
D601	8-719-046-77	DIODE EM1-V1			
D603	8-719-109-97	DIODE RD6.8ESB2			
D604	8-719-046-75	DIODE EU-1-V1			
D605	8-719-302-43	DIODE EL1Z			
D606	8-719-302-43	DIODE EL1Z			
D607	8-719-046-78	DIODE EG-1Z-V1			
D608	8-719-302-06	DIODE EU2A			
D609	8-719-053-32	DIODE FMU-G16S			
D611	8-719-058-38	DIODE FMN-G12S			
D612	8-719-058-38	DIODE FMN-G12S			
D613	8-719-058-38	DIODE FMN-G12S			
D614	8-719-058-38	DIODE FMN-G12S			
D617	8-719-991-33	DIODE 1SS133T-77			
D618	8-719-991-33	DIODE 1SS133T-77			
D619	8-719-991-33	DIODE 1SS133T-77			
D620	8-719-991-33	DIODE 1SS133T-77			
D622	8-719-923-60	DIODE MTZJ-T-77-9.1A			
D625	8-719-991-33	DIODE 1SS133T-77			
D637	8-719-110-17	DIODE RD10ESB2			
D638	8-719-991-33	DIODE 1SS133T-77			
D800	8-719-991-33	DIODE 1SS133T-77			
D801	8-719-991-33	DIODE 1SS133T-77			
D802	1-535-465-11	LEAD, JUMPER (5.0MM)			
D803	8-719-908-03	DIODE GP08D			
D807	8-719-302-43	DIODE EL1Z			
D808	8-719-908-03	DIODE GP08D			
D810	8-719-302-43	DIODE EL1Z			
D811	8-719-110-41	DIODE RD15ESB2			
D812	8-719-038-49	DIODE FMS-3FU-LF027-103			
D815	8-719-908-03	DIODE GP08D			
D817	8-719-109-85	DIODE RD5.1ESB2			
D902	8-719-923-60	DIODE MTZJ-T-77-9.1A			
D903	8-719-923-60	DIODE MTZJ-T-77-9.1A			
D904	8-719-923-60	DIODE MTZJ-T-77-9.1A			
D905	8-719-923-60	DIODE MTZJ-T-77-9.1A			
D906	8-719-923-60	DIODE MTZJ-T-77-9.1A			
D920	8-719-109-89	DIODE RD5.6ESB2			
D1201	8-719-109-72	DIODE RD3.9ESB2			
D1202	1-535-465-11	LEAD, JUMPER (5.0MM)			
		< FERRITE BEAD >			
FB501	1-410-397-21	FERRITE	1.1UH		
FB600	1-410-396-41	FERRITE	0.45UH		
FB601	1-410-396-41	FERRITE	0.45UH		
FB602	1-410-397-21	FERRITE	1.1UH		
FB603	1-410-396-41	FERRITE	0.45UH		

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REF. NO.		PART.NO	DESCRIPTION	REMARK
FB604		1-410-396-41	FERRITE 0.45UH	
FB605		1-410-396-41	FERRITE 0.45UH	
FB606		1-410-397-21	FERRITE 1.1UH	
FB607		1-410-397-21	FERRITE 1.1UH	
FB608		1-410-396-41	FERRITE 0.45UH	
FB800		1-410-397-21	FERRITE 1.1UH	
FB801		1-410-396-41	FERRITE 0.45UH	
FB901		1-535-465-11	LEAD, JUMPER (5.0MM)	
FB902		1-535-465-11	LEAD, JUMPER (5.0MM)	
			< ENCAPSULATED FILTER >	
FL501		1-236-163-41	ENCAPSULATED COMPONENT	
			< IC >	
IC500		8-759-192-71	IC STV9379	
IC600		8-749-010-92	IC STR-S6709	
IC601	⚠	8-749-013-21	IC TLP721(D4-G)	
IC602		8-749-016-19	IC SE135N-LF4	
IC603		8-759-144-82	IC UPC2405HF	
IC606		8-759-267-25	IC LM2940T-9.0	
IC800		8-759-103-93	IC UPC393C	
IC1200		8-759-585-29	IC TDA7264A	
IC1201		8-759-502-21	IC TDA2822M	
			< SOCKET >	
J1200		1-770-218-11	JACK, PIN	
			< COIL >	
L501		1-535-465-11	LEAD, JUMPER (5.0MM)	
L502		1-412-519-11	INDUCTOR 3.3UH	
L503		1-412-519-11	INDUCTOR 3.3UH	
L609		1-412-533-21	INDUCTOR 47UH	
L610		1-535-465-11	LEAD, JUMPER (5.0MM)	
L611		1-412-527-11	INDUCTOR 15UH	
L612		1-412-522-41	INDUCTOR 5.6UH	
L613		1-412-522-41	INDUCTOR 5.6UH	
L615		1-412-529-11	INDUCTOR 22UH	
L616		1-412-533-21	INDUCTOR 47UH	
L801		1-459-111-00	INDUCTOR 10MMH	
L802		1-459-104-00	COIL, WITH CORE	
L803		1-420-872-00	COIL, AIR CORE	
L806		1-535-465-11	LEAD, JUMPER (5.0MM)	
L809		1-408-611-31	INDUCTOR 47UH	
L813		1-412-552-11	INDUCTOR 2.2MMH	
			< IC LINK >	
PS600	⚠	1-532-686-21	LINK, IC 2.7A (ICP-F75)	
PS601	⚠	1-532-686-21	LINK, IC 2.7A (ICP-F75)	
PS602	⚠	1-532-686-21	LINK, IC 2.7A (ICP-F75)	
PS603	⚠	1-532-686-21	LINK, IC 2.7A (ICP-F75)	

REF. NO.		PART.NO	DESCRIPTION	REMARK
			< TRANSISTOR >	
Q501		8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q502		8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q503		8-729-030-02	TRANSISTOR DTC144ESA	
Q601		8-729-025-04	TRANSISTOR 2SC3852A	
Q605		8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q606		8-729-029-56	TRANSISTOR DTA144ESA	
Q607		8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q611		8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q801		8-729-039-68	TRANSISTOR IRF620	
Q802		8-729-042-86	TRANSISTOR 2SC5251-01	
Q803		8-729-119-80	TRANSISTOR 2SC2688-LK	
Q805		8-729-030-02	TRANSISTOR DTC144ESA	
Q900		8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q1200		8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q1201		8-729-029-94	TRANSISTOR DTC143TSA	
Q1202		8-729-029-66	TRANSISTOR DTC114ESA	
Q1203		8-729-029-94	TRANSISTOR DTC143TSA	
Q1204		8-729-029-94	TRANSISTOR DTC143TSA	
			< RESISTOR >	
JW010		1-410-397-21	FERRITE 1.1UH	
JW125		1-247-841-91	CARBON 2.7K 5% 1/4W	
R500		1-215-457-00	METAL 33K 1% 1/4W	
R502		1-249-421-11	CARBON 2.2K 5% 1/4W	
R503		1-249-429-11	CARBON 10K 5% 1/4W	
R504		1-215-457-00	METAL 33K 1% 1/4W	
R505		1-249-382-11	CARBON 1.2 5% 1/4W F	
R506		1-215-441-00	METAL 6.8K 1% 1/4W	
R507		1-215-888-00	METAL OXIDE 220 5% 2W F	
R508		1-216-371-00	METAL OXIDE 1.5 5% 2W F	
R509		1-249-443-11	CARBON 0.47 5% 1/4W F	
R510		1-249-443-11	CARBON 0.47 5% 1/4W F	
R519		1-215-443-00	METAL 8.2K 1% 1/4W	
R520		1-215-451-00	METAL 18K 1% 1/4W	
R521		1-215-455-00	METAL 27K 1% 1/4W	
R522		1-247-863-91	CARBON 22K 5% 1/4W	
R523		1-247-863-91	CARBON 22K 5% 1/4W	
R524		1-249-425-11	CARBON 4.7K 5% 1/4W	
R525		1-249-425-11	CARBON 4.7K 5% 1/4W	
R526		1-249-421-11	CARBON 2.2K 5% 1/4W	
R527		1-215-433-00	METAL 3.3K 1% 1/4W	
R540		1-249-441-11	CARBON 100K 5% 1/4W	
R600	⚠	1-216-490-11	METAL OXIDE 39K 5% 3W F	
R601		1-249-417-11	CARBON 1K 5% 1/4W	
R602		1-215-473-00	METAL 150K 1% 1/4W	
R603		1-215-898-11	METAL OXIDE 10K 5% 2W F	
R604		1-249-420-11	CARBON 1.8K 5% 1/4W	
R605		1-216-362-11	METAL OXIDE 0.27 5% 2W F	
R606		1-535-143-21	LEAD, JUMPER (12.5MM)	

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REF. NO.		PART.NO	DESCRIPTION			REMARK
R607		1-216-421-11	METAL OXIDE	12	5%	1W F
R608		1-216-365-00	METAL OXIDE	0.47	5%	2W F
R609		1-535-465-11	LEAD, JUMPER (5.0MM)			
R610		1-215-429-00	METAL	2.2K	1%	1/4W
R612		1-249-428-11	CARBON	8.2K	5%	1/4W
R616		1-215-471-00	METAL	120K	1%	1/4W
R617		1-215-901-00	METAL OXIDE	33K	5%	2W F
R618		1-247-863-91	CARBON	22K	5%	1/4W
R619		1-216-425-11	METAL OXIDE	56	5%	1W F
R620		1-260-131-11	CARBON	470K	5%	1/2W
R621		1-216-425-11	METAL OXIDE	56	5%	1W F
R622		1-249-437-11	CARBON	47K	5%	1/4W
R623		1-249-429-11	CARBON	10K	5%	1/4W
R624		1-249-393-11	CARBON	10	5%	1/4W F
R625		1-249-434-11	CARBON	27K	5%	1/4W
R626		1-249-430-11	CARBON	12K	5%	1/4W
R627		1-216-347-11	METAL OXIDE	0.68	5%	1W F
R628		1-249-415-11	CARBON	680	5%	1/4W F
R631	⚠	1-202-968-11	CEMENTED	1.2	5%	10W
R632		1-247-807-31	CARBON	100	5%	1/4W
R633		1-247-807-31	CARBON	100	5%	1/4W
R634		1-249-397-11	CARBON	22	5%	1/4W F
R636		1-249-417-11	CARBON	1K	5%	1/4W
R637		1-247-815-91	CARBON	220	5%	1/4W
R638		1-247-863-91	CARBON	22K	5%	1/4W
R639		1-215-425-00	METAL	1.5K	1%	1/4W
R641	⚠	1-240-030-91	METAL	4.7M	5%	1/2W
R642	⚠	1-202-968-11	CEMENTED	1.2	5%	10W
R643	⚠	1-240-030-91	METAL	4.7M	5%	1/2W
R646		1-249-377-11	CARBON	0.47	5%	1/4W F
R647		1-202-933-61	FUSIBLE	0.1	10%	1/2W F
R648	⚠	1-202-968-11	CEMENTED	1.2	5%	10W
R649		1-249-426-11	CARBON	5.6K	5%	1/4W
R650		1-249-429-11	CARBON	10K	5%	1/4W
R800		1-249-429-11	CARBON	10K	5%	1/4W
R802		1-215-437-00	METAL	4.7K	1%	1/4W
R803		1-247-843-11	CARBON	3.3K	5%	1/4W
R804		1-249-427-11	CARBON	6.8K	5%	1/4W
R805		1-249-435-11	CARBON	33K	5%	1/4W
R808		1-215-888-00	METAL OXIDE	220	5%	2W F
R809		1-247-891-00	CARBON	330K	5%	1/4W
R810		1-215-888-00	METAL OXIDE	220	5%	2W F
R812		1-249-421-11	CARBON	2.2K	5%	1/4W
R813		1-249-417-11	CARBON	1K	5%	1/4W F
R814		1-249-381-11	CARBON	1	5%	1/4W F
R815		1-249-381-11	CARBON	1	5%	1/4W F
R816		1-215-917-11	METAL OXIDE	1K	5%	3W F
R818		1-215-884-11	METAL OXIDE	47	5%	2W F
R819		1-535-143-71	LEAD, JUMPER (7.5MM)			
R820		1-249-403-11	CARBON	68	5%	1/4W
R822		1-215-868-00	METAL OXIDE	680	5%	1W F
R823		1-215-918-00	METAL OXIDE	1.5K	5%	3W F
R824		1-249-420-11	CARBON	1.8K	5%	1/4W
R825		1-215-884-11	METAL OXIDE	47	5%	2W F
R826		1-260-099-11	CARBON	1K	5%	1/2W
R827		1-249-425-11	CARBON	4.7K	5%	1/4W
R828		1-215-449-00	METAL	15K	1%	1/4W
R829		1-260-120-11	CARBON	56K	5%	1/2W
R831		1-535-465-11	LEAD, JUMPER (5.0MM)			
R833		1-247-887-00	CARBON	220K	5%	1/4W
R835		1-216-471-11	METAL OXIDE	27	5%	3W F
R836		1-249-439-11	CARBON	68K	5%	1/4W
R838		1-215-455-00	METAL	27K	1%	1/4W
R840		1-247-807-31	CARBON	100	5%	1/4W
R841		1-249-418-11	CARBON	1.2K	5%	1/4W
R842		1-249-441-11	CARBON	100K	5%	1/4W
R843		1-247-891-00	CARBON	330K	5%	1/4W
R844		1-535-143-11	LEAD, JUMPER (5.0MM)			
R846		1-247-893-11	CARBON	390K	5%	1/4W
R847		1-247-897-11	CARBON	560K	5%	1/4W
R848		1-247-863-91	CARBON	22K	5%	1/4W
R849		1-249-429-11	CARBON	10K	5%	1/4W
R851		1-215-898-11	METAL OXIDE	10K	5%	2W F
R852		1-249-432-11	CARBON	18K	5%	1/4W
R853		1-216-361-00	METAL OXIDE	0.22	5%	2W F
R901		1-260-082-11	CARBON	39	5%	1/2W
R902		1-260-082-11	CARBON	39	5%	1/2W
R909		1-249-429-11	CARBON	10K	5%	1/4W
R922		1-247-807-31	CARBON	100	5%	1/4W
R923		1-249-416-11	CARBON	820	5%	1/4W
R1200		1-249-425-11	CARBON	4.7K	5%	1/4W
R1201		1-249-434-11	CARBON	27K	5%	1/4W
R1202		1-249-389-11	CARBON	4.7	5%	1/4W F
R1203		1-249-417-11	CARBON	1K	5%	1/4W
R1204		1-249-417-11	CARBON	1K	5%	1/4W
R1205		1-249-428-11	CARBON	8.2K	5%	1/4W
R1206		1-249-428-11	CARBON	8.2K	5%	1/4W
R1207		1-249-413-11	CARBON	470	5%	1/4W
R1208		1-212-849-00	FUSIBLE	4.7	5%	1/4W F
R1209		1-212-849-00	FUSIBLE	4.7	5%	1/4W F
R1210		1-249-413-11	CARBON	470	5%	1/4W
R1211		1-249-424-11	CARBON	3.9K	5%	1/4W
R1212		1-249-424-11	CARBON	3.9K	5%	1/4W
R1213		1-249-421-11	CARBON	2.2K	5%	1/4W
R1216		1-249-413-11	CARBON	470	5%	1/4W
R1217		1-249-425-11	CARBON	4.7K	5%	1/4W
R1218		1-535-465-11	LEAD, JUMPER (5.0MM)			
R1219		1-249-417-11	CARBON	1K	5%	1/4W
R1220		1-247-863-91	CARBON	22K	5%	1/4W
R1221		1-247-863-91	CARBON	22K	5%	1/4W

D **D2** **VM**

The components identified by shading and marked ⚠ are critical for safety
Replace only with the part number specified.

REF. NO.		PART.NO	DESCRIPTION				REMARK
			< RELAY >				
RY600	⚠	1-755-018-11	RELAY				
RY601	⚠	1-755-266-11	RELAY, AC POWER				
			< SWITCH >				
S801		1-572-707-11	SWITCH, LEVER				
			< SPARK GAP >				
SG801		1-519-422-11	GAP, SPARK				
SG802		1-519-422-11	GAP, SPARK				
			< TRANSFORMER >				
T601	⚠	1-429-604-11	TRANSFORMER, CONVERTER				
T800		1-426-981-11	TRANSFORMER, FERRITE (PMT)				
T803	⚠	1-453-308-21	TRANSFORMER ASSY, FLYBACK (NX-4521)				
T804		1-437-195-14	TRANSFORMER, HORIZONTAL DRIVE				
T805		1-433-980-11	TRANSFORMER, HORIZONTAL LINEAR				
			< THERMISTOR >				
THP600	⚠	1-809-827-11	THERMISTOR, POSITIVE				
**********							
		*A-1642-254-A	D2 BOARD, COMPLETE				
			**********				
		4-382-854-11	SCREW (M3X10), P, SW (+)				
			< CAPACITOR >				
C8801		1-107-683-11	ELECT	2.2MF	0	250V	
C8802		1-136-104-00	FILM	0.16MF	5%	200V	
C8803		1-136-946-11	FILM	0.12MF	5%	200V	
C8804		1-136-207-11	FILM	0.047MF	10%	250V	
			< CONNECTOR >				
CN8801		*1-770-748-11	CONNECTOR, BOARD TO BOARD 12P				
			< DIODE >				
D8801		8-719-923-60	DIODE MTZJ-T-77-9.1A				
D8802		8-719-302-43	DIODE EL1Z				
			< IC >				
IC8801		8-749-010-64	PHOTO COUPLER PC123F2				
			< COIL >				
L8801		1-406-674-11	INDUCTOR	3.3MMH			
L8802		1-406-978-11	INDUCTOR	150UH			
			< TRANSISTOR >				
Q8801		8-729-034-09	TRANSISTOR 2SK2518-01MR				
Q8802		8-729-030-02	TRANSISTOR DTC144ESA				
Q8803		8-729-030-02	TRANSISTOR DTC144ESA				
			< RESISTOR >				
R8801		1-215-909-11	METAL OXIDE	47	5%	3W	F
R8802		1-249-441-11	CARBON	100K	5%	1/4W	
R8803		1-249-441-11	CARBON	100K	5%	1/4W	
R8804		1-249-421-11	CARBON	2.2K	5%	1/4W	
R8805		1-249-429-11	CARBON	10K	5%	1/4W	
R8806		1-247-807-31	CARBON	100	5%	1/4W	
R8807		1-202-885-91	RES, SOLID	1M	20%	1/2W	
**********							
		*A-1644-098-A	VM BOARD, COMPLETE				
			**********				
		4-382-854-01	SCREW (M3X8), P, SW (+)				
		4-382-854-11	SCREW (M3X10), P, SW (+)				
			< CAPACITOR >				
C1501		1-104-664-11	ELECT	47MF	20%	16V	
C1502		1-130-777-00	FILM	0.1MF	5%	63V	
C1503		1-102-510-11	CERAMIC	12PF	5%	50V	
C1504		1-136-177-00	FILM	1MF	5%	50V	
C1505		1-136-177-00	FILM	1MF	5%	50V	
C1506		1-102-973-00	CERAMIC	100PF	5%	50V	
C1507		1-130-777-00	FILM	0.1MF	5%	63V	
C1508		1-104-664-11	ELECT	47MF	20%	16V	
C1509		1-136-202-11	FILM	0.33MF	5%	63V	
C1510		1-102-980-00	CERAMIC	270PF	5%	50V	
C1511		1-130-777-00	FILM	0.1MF	5%	63V	
C1512		1-130-777-00	FILM	0.1MF	5%	63V	
C1513		1-126-964-11	ELECT	10MF	20%	50V	
C1514		1-126-967-11	ELECT	47MF	20%	50V	
C1515		1-126-967-11	ELECT	47MF	20%	50V	
C1516		1-102-852-91	CERAMIC	47PF	5%	50V	
C1701		1-126-933-11	ELECT	100MF	20%	16V	
C1702		1-126-933-11	ELECT	100MF	20%	16V	
C1703		1-130-491-00	MYLAR	0.047MF	5%	50V	
C1704		1-107-648-91	ELECT	100MF	20%	160V	
C1705		1-107-638-11	ELECT	33MF	20%	160V	
C1706		1-104-999-11	FILM	0.1MF	5%	200V	
C1707		1-137-397-11	FILM	0.047MF	5%	100V	
C1708		1-130-471-00	FILM	0.001MF	5%	50V	
C1709		1-130-471-00	FILM	0.001MF	5%	50V	
C1710		1-102-959-00	CERAMIC	22PF	5%	50V	
C1711		1-126-962-11	ELECT	3.3MF	20%	50V	
C1720		1-107-667-11	ELECT	2.2MF	20%	160V	
C1721		1-137-397-11	FILM	0.047MF	5%	100V	

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VM

REF. NO.	PART.NO	DESCRIPTION				REMARK
C1722	1-126-935-11	ELECT	470MF	20%	16V	
C1723	1-161-830-00	CERAMIC	0.0047MF		500V	
C1725	1-128-551-11	ELECT	22MF	20%	25V	
C1726	1-136-153-00	FILM	0.01MF	5%	50V	
C1801	1-104-664-11	ELECT	47MF	20%	25V	
C1803	1-137-368-11	FILM	0.0047MF	5%	50V	
C1804	1-126-964-11	ELECT	10MF	20%	50V	
C1805	1-137-366-11	FILM	0.0022MF	5%	50V	
		< CONNECTOR >				
CN1501	*1-564-506-11	PLUG, CONNECTOR 3P				
CN1502	*1-564-508-11	PLUG, CONNECTOR 5P				
CN1503	*1-564-506-11	PLUG, CONNECTOR 3P				
CN1716	*1-568-880-51	PIN, CONNECTOR 5P				
CN1717	*1-568-881-51	PIN, CONNECTOR 6P				
CN1718	*1-770-723-11	CONNECTOR, BOARD TO BOARD 8P				
CN1719	1-568-878-51	PIN, CONNECTOR 3P				
CN1801	*1-564-508-11	PLUG, CONNECTOR 5P				
CN1802	*1-568-878-51	PIN, CONNECTOR 3P				
		< DIODE >				
D1501	8-719-991-33	DIODE 1SS133T-77				
D1502	8-719-991-33	DIODE 1SS133T-77				
D1503	8-719-991-33	DIODE 1SS133T-77				
D1504	8-719-991-33	DIODE 1SS133T-77				
D1505	1-535-465-11	LEAD, JUMPER (5.0MM)				
D1506	8-719-911-19	DIODE 1SS119-25				
D1701	8-719-991-33	DIODE 1SS133T-77				
D1702	8-719-110-88	DIODE RD39ESB2				
D1703	8-719-110-88	DIODE RD39ESB2				
D1801	8-719-929-15	DIODE HZS9.1NB2				
		< IC >				
IC1501	8-759-478-66	IC CXA8070P				
IC1502	8-759-903-16	IC LM318P				
IC1801	8-759-701-59	IC NJM78M09FA				
IC1802	8-759-603-37	IC M5216P				
		< COIL >				
L1701	1-535-465-11	LEAD, JUMPER (5.0MM)				
L1703	1-408-603-31	INDUCTOR	10UH			
L1704	1-408-603-31	INDUCTOR	10UH			
		< IC LINK >				
PS1801 ⚠	1-532-605-91	LINK, IC 0.4A/150V ICP N10				
		< TRANSISTOR >				
Q1501	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q1502	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q1503	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q1504	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q1505	8-729-017-05	TRANSISTOR 2SA1837				
Q1506	8-729-017-06	TRANSISTOR 2SC4793				
Q1701	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q1702	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q1703	8-729-017-05	TRANSISTOR 2SA1837				
Q1704	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q1705	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q1706	8-729-017-06	TRANSISTOR 2SC4793				
Q1708	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q1709	8-729-119-78	TRANSISTOR 2SC2785-HFE				
		< RESISTOR >				
R1505	1-249-437-11	CARBON	47K	5%	1/4W	
R1506	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1507	1-247-843-11	CARBON	3.3K	5%	1/4W	
R1508	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1509	1-247-843-11	CARBON	3.3K	5%	1/4W	
R1510	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1511	1-249-441-11	CARBON	100K	5%	1/4W	
R1512	1-249-417-11	CARBON	1K	5%	1/4W	
R1513	1-249-441-11	CARBON	100K	5%	1/4W	
R1514	1-260-321-71	CARBON	270	5%	1/2W	
R1515	1-249-417-11	CARBON	1K	5%	1/4W	
R1516	1-247-895-91	CARBON	470K	5%	1/4W	
R1517	1-247-807-31	CARBON	100	5%	1/4W	
R1518	1-247-807-31	CARBON	100	5%	1/4W	
R1520	1-247-883-00	CARBON	150K	5%	1/4W	
R1521	1-249-429-11	CARBON	10K	5%	1/4W	
R1522	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1523	1-249-429-11	CARBON	10K	5%	1/4W	
R1525	1-215-453-00	METAL	22K	1%	1/4W	
R1526	1-215-437-00	METAL	4.7K	1%	1/4W	
R1527	1-215-437-00	METAL	4.7K	1%	1/4W	
R1528	1-249-429-11	CARBON	10K	5%	1/4W	
R1530	1-247-863-91	CARBON	22K	5%	1/4W	
R1532	1-215-445-00	METAL	10K	1%	1/4W	
R1534	1-247-807-31	CARBON	100	5%	1/4W	
R1535	1-215-443-91	METAL	8.2K	1%	1/4W	
R1536	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1537	1-249-421-11	CARBON	2.2K	5%	1/4W	
R1538	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R1539	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R1540	1-216-393-00	METAL OXIDE	2.2	5%	3W	F
R1541	1-215-886-11	METAL OXIDE	100	5%	2W	F
R1701	1-249-397-11	CARBON	22	5%	1/4W	F
R1702	1-247-807-31	CARBON	100	5%	1/4W	
R1703	1-249-416-11	CARBON	820	5%	1/4W	
R1704	1-247-807-31	CARBON	100	5%	1/4W	
R1706	1-247-815-91	CARBON	220	5%	1/4W	
R1707	1-249-411-11	CARBON	330	5%	1/4W	
R1708	1-249-417-11	CARBON	1K	5%	1/4W	
R1710	1-249-403-11	CARBON	68	5%	1/4W	

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VM **H**

REF. NO.	PART.NO	DESCRIPTION	REMARK
R1711	1-249-403-11	CARBON 68 5% 1/4W	
R1712	1-212-974-00	FUSIBLE 47 5% 1/2W	F
R1713	1-249-386-11	CARBON 2.7 5% 1/4W	F
R1714	1-249-414-11	CARBON 560 5% 1/4W	F
R1715	1-249-432-11	CARBON 18K 5% 1/4W	
R1716	1-249-417-11	CARBON 1K 5% 1/4W	F
R1717	1-216-476-11	METAL OXIDE 180 5% 3W	F
R1718	1-249-432-11	CARBON 18K 5% 1/4W	
R1719	1-249-385-11	CARBON 2.2 5% 1/4W	F
R1720	1-247-696-11	CARBON 47 5% 1/4W	F
R1721	1-249-414-11	CARBON 560 5% 1/4W	F
R1722	1-249-401-11	CARBON 47 5% 1/4W	
R1723	1-535-465-11	LEAD, JUMPER (5.0MM)	
R1724	1-249-417-11	CARBON 1K 5% 1/4W	
R1725	1-249-417-11	CARBON 1K 5% 1/4W	
R1726	1-249-429-11	CARBON 10K 5% 1/4W	
R1727	1-249-431-11	CARBON 15K 5% 1/4W	
R1728	1-249-408-11	CARBON 180 5% 1/4W	
R1729	1-249-408-11	CARBON 180 5% 1/4W	
R1730	1-249-417-11	CARBON 1K 5% 1/4W	
R1731	1-249-414-11	CARBON 560 5% 1/4W	
R1806	1-247-883-00	CARBON 150K 5% 1/4W	
R1807	1-249-429-11	CARBON 10K 5% 1/4W	
R1808	1-249-429-11	CARBON 10K 5% 1/4W	
R1809	1-249-429-11	CARBON 10K 5% 1/4W	
R1810	1-249-429-11	CARBON 10K 5% 1/4W	

****

*A-1646-183-A H BOARD, COMPLETE
****

1-410-397-21 FERRITE 1.1UH

< CAPACITOR >

C5617	1-126-941-11	ELECT	470MF	20%	25V
C5621	1-136-165-00	FILM	0.1MF	5%	50V
C5623	1-104-666-11	ELECT	220MF	20%	25V
C5633 ⚠	1-107-563-11	FILM	0.1MF	20%	300V
C5635 ⚠	1-107-563-11	FILM	0.1MF	20%	300V
C5654	1-136-165-00	FILM	0.1MF	5%	50V
C5655	1-107-974-11	CERAMIC	47PF	5%	2KV
C5657	1-126-967-11	ELECT	47MF	20%	50V
C5658	1-107-679-91	ELECT	10MF	20%	450V
C5901	1-102-106-00	CERAMIC	100PF	10%	50V
C5902	1-137-372-11	FILM	0.022MF	5%	50V
C5903	1-137-372-11	FILM	0.022MF	5%	50V
C5904	1-104-665-11	ELECT	100MF	20%	25V
C5905	1-126-964-91	ELECT	10MF	20%	50V
C5907	1-126-964-11	ELECT	10MF	20%	50V
C5911	1-126-964-11	ELECT	10MF	20%	50V
C5913	1-102-106-00	CERAMIC	100PF	10%	50V

< CONNECTOR >

CN5601 ⚠	*1-580-844-11	PIN, CONNECTOR (POWER)
CN5602 ⚠	*1-691-291-11	PIN, CONNECTOR (PC BOARD) 5P
CN5605	1-695-915-11	TAB (CONTACT)
CN5900	1-694-564-11	TERMINAL BLOCK, SVHS
CN5901	*1-568-882-51	PIN, CONNECTOR 7P
CN5903	*1-564-516-11	PLUG, CONNECTOR 13P
CN5916	1-568-878-51	PIN, CONNECTOR 3P

< DIODE >

D5639	8-719-923-42	DIODE MTZJ-T-77-6.2B
D5640	8-719-063-72	DIODE DINL20U-TA2
D5642	8-719-510-53	DIODE D4SB60L
D5901	8-719-030-11	DIODE SLA-570KT3F
	*4-203-258-11	HOLDER, LED (D5901)
D5906	8-719-109-89	DIODE RD5.6ESB2
D5907	8-719-109-89	DIODE RD5.6ESB2
D5910	8-719-923-60	DIODE MTZJ-T-77-9.1A

< FUSE >

F5601 ⚠	1-576-232-21	FUSE (H.B.C.) 5A/250V
⚠	*1-533-725-11	HOLDER, FUSE (F5601)

< IC >

IC5604	8-759-510-52	IC L4941BV
IC5605	8-759-584-19	IC TNY253P
IC5606 ⚠	8-749-013-21	IC TLP721(D4-G)
IC5900	8-742-014-11	IC HYB IC SBX 1981-51

< SOCKET >

J5900	1-785-448-11	JACK

< COIL >

L5608	1-412-527-11	INDUCTOR 15UH
L5901	1-408-603-31	INDUCTOR 10UH
L5902	1-408-603-31	INDUCTOR 10UH
L5903	1-408-603-31	INDUCTOR 10UH
L5904	1-408-603-31	INDUCTOR 10UH

< RESISTOR >

R5360	1-205-998-11	CEMENT	1	5%	10W
R5602	1-249-389-11	CARBON	4.7	5%	1/4W F
R5629 ⚠	1-260-135-11	CARBON	1M	5%	1/2W
R5641	1-249-417-11	CARBON	1K	5%	1/4W
R5653	1-215-863-11	METAL OXIDE	100	5%	1W F
R5900	1-247-815-91	CARBON	220	5%	1/4W
R5901	1-247-799-91	CARBON	47	5%	1/4W
R5904	1-249-389-11	CARBON	4.7	5%	1/4W F
R5910	1-249-422-11	CARBON	2.7K	5%	1/4W
R5911	1-249-426-11	CARBON	5.6K	5%	1/4W

The components identified by shading and marked ⚠ are critical for safety
Replace only with the part number specified.

H

REF. NO.		PART.NO	DESCRIPTION	REMARK
R5912		1-249-429-11	CARBON 10K 5% 1/4W	
R5913		1-247-863-91	CARBON 22K 5% 1/4W	
R5914		1-249-437-11	CARBON 47K 5% 1/4W	
R5919		1-249-437-11	CARBON 47K 5% 1/4W	
R5921		1-249-437-11	CARBON 47K 5% 1/4W	
			< SWITCH >	
S5601	⚠	1-571-433-21	SWITCH, PUSH (AC POWER)	
S5900		1-692-979-11	SWITCH, TACTILE	
S5901		1-692-979-11	SWITCH, TACTILE	
S5902		1-692-979-11	SWITCH, TACTILE	
			< TRANSFORMER >	
LF5600	⚠	1-431-402-11	TRANSFORMER, LINE FILTER	
LF5601	⚠	1-431-402-11	TRANSFORMER, LINE FILTER	
T5602	⚠	1-433-925-11	TRANSFORMER, CONVERTER	
			< VARISTOR >	
VDR5601	⚠	1-801-268-51	VARISTOR ERZV14D471	
	⚠	*4-374-846-11	COVER, CAPACITOR, CAP TYPE (VDR560)	
			MISCELLANEOUS	
			*************	
	⚠	1-416-466-11	COIL, DEMAGNETIC	
		1-452-032-00	MAGNETIC, DISC: 10MM	
		1-452-094-00	MAGNET, ROTATABLE DISK: 15MM	
	⚠	1-453-308-21	TRANSFORMER ASSY, FLYBACK (NX-4521)	
		1-529-408-11	SPEAKER 4.2x24CM	
		1-529-417-11	SUBWOOFER SPEAKER	
	⚠	1-571-433-21	SWITCH, PUSH (AC POWER)	
		1-693-338-11	TUNER/VIF (AEP) KV-28FX20A/28FX20D/28FX20E)	
		1-693-340-11	TUNER/VIF (FR) (KV-28FX20B)	
		1-693-339-11	TUNER/VIF (UK) (KV-28FX20U)	
	⚠	1-765-286-11	CORD, POWER (KV-28FX20A/28FX20B/ KV-28FX20D/28FX20E)	
	⚠	1-776-204-12	CORD, POWER (FILTER) (KV-28FX20U)	
	⚠	1-451-481-11	DEFLECTION YOKE (Y28RCV2)	
	⚠	8-453-011-11	NECK ASSY, NA299-M	
	⚠	8-737-785-05	PICTURE TUBE (W66LLX010X)	
		1-452-896-11	COIL, NA ROTATION (RT200)	
	⚠	1-251-374-31	CAP ASSY, HIGH VOLTAGE	
			ACCESSORIES AND PACKING MATERIALS	
			**********	
		4-204-789-41	MANUAL, INSTRUCTION (KV-28FX20A) (ITALIAN)	
		4-204-789-51	MANUAL, INSTRUCTION (KV-28FX20B) (FRENCH/GERMAN/ITALIAN/DUTCH)	
		4-204-789-11	MANUAL, INSTRUCTION (KV-28FX20D) (TURKISH/GERMAN/GREEK/ENGLISH)	
		4-204-789-71	MANUAL, INSTRUCTION (KV-28FX20E) (SPANISH)	
		4-204-789-81	MANUAL, INSTRUCTION (KV-28FX20E) (PORTUGUESE/FINNISH/DANISH/ NORWEGIAN/SWEDISH)	
		2-204-789-61	MANUAL, INSTRUCTION (KV-28FX20U) (ENGLISH)	
		*4-204-457-02	INDIVIDUAL CARTON	
		*4-204-677-01	CUSHION (LOWER) (ASSY)	
		*4-204-676-01	CUSHION (UPPER) (ASSY)	
		*4-395-957-01	BAG, PROTECTION	
			REMOTE COMMANDER	
			**********	
		1-418-476-11	REMOTE COMMANDER (RM-887)	

9-974-980-01

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